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THE RELATION OF PATHOLOGIC PHYSIOLOGY TO INTERNAL MEDICINE *

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For surgery, pathologic anatomy has furnished a basis for both diagnosis and treatment. The tumor or foreign body can be taken out, the inflamed part incised or removed, the obstructed passage dilated or the hollow viscus drained. For internal medicine, pathologic anatomy has been equally important as a fundamental basis in the diagnosis of disease; and it has furnished an exact demonstrable basis for many symptom-complexes. So far as treatment is concerned, however, its direct value is far less evident, for pathologic changes in structure are but rarely influenced by medicine. The clinician schooled in pathologic anatomy is therefore apt to be led into a position of therapeutic nihilism, placing his reliance chiefly on the curative forces of Nature which are to be assisted here and there by medical care and by nursing. This attitude, which was prominent in certain clinical schools during the last century, found its expression in the saying that in Vienna the ideal patient was he whose case was diagnosed by Skoda and whose necropsy was performed by Rokitansky.

At present medical therapy has assumed definite broad lines of development, and optimism in regard to its future generally prevails. Therapeutic advances have been due, in the first place, to the growth of our knowledge of the causes of internal diseases. Whenever possible these causes are to be attacked before they have fastened themselves on the individual, and the science of preventive medicine with its recent but remarkable record of achievement bears witness to the fruitfulness of this line of endeavor. Preventive medicine is rapidly passing into specialized hands, not only as a research and academic subject but in its application to the general health of the community. Yet the use of preventive methods will ever fall within the province of the general practitioner. He must instruct his immediate clientele how best to avoid diseases in general and he must protect them when particular dangers threaten. In chronic affections a knowledge of the cause of the disease may make it possible to limit or to prevent further ravages; in recurrent affections a knowledge of the etiology may make it possible to prevent future attacks. Finally, direct causative therapy has yielded brilliant results in special instances, as in malaria, syphilis, diphtheria and scurvy. At present, however, there are relatively few internal diseases in which a direct causative therapy is successful after the disease has once manifested itself.

If we turn now to that large group of diseases to which no etiologic line of treatment is at present applicable, we find that the advances in therapy, of recent years, have been due largely to the fact that we have learned to recognize clearly that even when the underlying anatomic changes are unknown or inaccessible to treatment, nevertheless much may be done for the patient by correcting so far as is possible the essential functional disturbances which are the immediate causes of his symptoms. The dietetic treatment of diabetes, the dietetic and acid treatment of gastric achlorhydria, the use of digitalis in certain forms of cardiac insufficiency and the restriction of chlorids in special types of edema may be cited as brilliant examples of the effectiveness of medical treatment directed against disturbed functions rather than against anatomic changes or etiologic factors.

Pathologic physiology, the science of disturbed function, has thus become one of the important underlying sciences of medical practice. From the point of view of the clinic, it seeks to explain and to correlate the disturbances in function which occur in patients; and it is the scientific basis of that therapy which is directed against disturbances of function rather than against causes or changes in structure. Although the importance of this subject is now generally recognized, its study and advancement have acquired no definite place in the medical curriculum, in the clinic or in the laboratory. In this paper it is my purpose to emphasize the intimate relation which exists between pathologic physiology and internal medicine, and to discuss some methods whereby the clinical aspects of pathologic physiology may be advanced.

METHODS OF STUDY

Every physiologic process is potentially liable to disturbances; and in its broader aspects pathologic physiology includes the study of all possible functional deviations from the normal. From the point of view of the clinic, however, certain of these deviations assume importance because they are encountered in the course of human diseases. The clinic, therefore, selects its special problems from the general domain of pathologic physiology. It must formulate its problems and it must test the applicability of the general principles of pathologic physiology to the special cases of disturbed function which come within its range of activity.

The problems of pathologic physiology that arise within the clinic may be studied either on patients or on animals. Each method of study has its advantages and each its limitations. The advantage of studies on patients is derived from the fact that we are dealing directly with human disease. Whenever a new method of study in the realm of physiology, biochemistry or

* Chairman's Address before the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

immunology is developed, the question arises as to its applicability to patients. If applicable, it must be used in the study of the various diseases encountered in the clinic. Within recent years, for example, the clinical study of the venous pulse and of the electrocardiogram have thrown a flood of light on the diagnosis and treatment of cardiac irregularities; bloodless methods for the estimation of arterial blood-pressure have brought into relief the importance of chronic arterial hypertension; physiologic studies on caloric requirements have profoundly affected our treatment of overnutrition and undernutrition, and chemical examinations of the blood have shed light on the question of nitrogen retention in nephritis, on the nature of gout, and on the disturbed metabolism of diabetes. Eventually such methods of study may become a part of the diagnostic or therapeutic armamentarium of the general or special practitioner. Yet, even though a method for studying patients fails to become directly applicable to routine diagnosis and treatment, it may still prove of great value; for in the light of the new studies, clinical manifestations may take on a new or more definite significance, and our attitude toward disease is always profoundly affected by our interpretation of its manifestations.

Many difficulties are encountered in making accurate physiologic or chemical studies on patients. In all cases we must have due regard for the welfare of the individual, and methods which may be to any degree harmful cannot be used. Then too, pathologic conditions in patients cannot be created; they must be observed as they appear spontaneously in the hospital or outpatient service. That chance favors the mind prepared is nowhere more true than in clinical medicine, in which the mind must be prepared to seize on and to make use of the unexpected and often fleeting manifestations that appear during the course of a disease. Most serious of all perhaps is the fact that it is difficult and often well-nigh impossible to create in the clinic the conditions of an ideal experiment with rigidly controlled variants and with numerous repetitions during which possible errors are eliminated.

It is on account of these difficulties that one must often turn to animal experiments for a solution of clinical problems. Here an attempt is first made to reproduce in animals the disease as it occurs naturally in man. In so doing important etiologic facts may be discovered. When the disease has been produced in animals its manifestations may then be studied with all the accuracy of a biologic experiment. Beyond doubt animal experiments, when applicable, constitute the most satisfactory method for studying a disease, and the results obtained by this method carry with them a certainty that can rarely be attained by studies on patients. The limitations of the animal experiment come, in the first place, from the fact that certain clinical disturbances have not been reproduced in animals; and, in the second, from the fact that even though similar disturbances be reproduced, their exact relationship to the disease of man must be established in each case. It therefore devolves on the clinic to restudy a disease in the light of animal experiments in order to establish the degree to which the conclusions drawn from the experiments are applicable to the natural disease of man.

WORKERS IN PATHOLOGIC PHYSIOLOGY

The field of pathologic physiology has been cultivated alike by physiologists, biochemists, pathologists and clinicians. For the physiologist, deviations from the normal have, as a rule, possessed interest only as they have thrown light on the normal functions of the body, and physiologists have usually refrained from stepping deliberately outside of their domain into the pathologic field. Biochemists, on the other hand, have been more ready to interest themselves in pathologic phenomena, not alone because these assist in the solution of physiologic problems but because their study has seemed worthy of separate pursuit; and metabolic disorders have frequently been studied by biochemists who have had no direct clinical ties. In essence, of course, the subject of pathologic physiology is but a portion of pathology in general; yet pathology in the past has concerned itself mainly with structural changes, and the training of pathologists has often been confined to pathologic anatomy. In addition to this, the immediate routine of the pathologist usually consists in the examination of tissues removed at operation or at necropsy, and he is not forced to study changed function. For these reasons there has been a tendency for pathologists to limit their activities to the field of pathologic anatomy; only in recent years has a strong tendency become evident to return to the physiologic field which was cultivated so earnestly by Cohnheim in the last century.

The clinician, on the other hand, encounters the problems of pathologic physiology at every turn. He is continually called on to interpret and to value the disturbances of function met in his patients and his conduct is deeply influenced by the interpretation which he places on disturbances encountered. From experience he learns to associate certain groups of symptoms with certain other groups. Frequently the anatomic changes which are present offer a fairly simple explanation for the phenomena encountered; but again they give little or no help and he must think in pure terms of disturbed function. To answer the many perplexing questions which arise in the clinic, carefully planned observations on patients or exact experiments on animals must frequently be resorted to.

It has been suggested that the more difficult questions which arise in the clinic should be submitted to the pure medical scientist for answer. The biochemist, for example, might be invited to study the chemical disturbances in cases of diabetes or gout, and the physiologist might study patients with cardiac irregularities, high blood-pressure or disturbed secretion. This general method for studying the problems of internal medicine has its manifest advantages in that it secures the services of experts. At the same time its inherent defects should not be lost sight of. The physiologist or biochemist often has no immediate interest in the problems of the clinic, but prefers to devote himself to the more fundamental aspects of his subject. He is apt to be restive under the clinical limitations which prevent conclusive experiments and often necessitate intermittent work owing to an inability to secure proper material. Finally, the scientific worker often prefers to work in his own laboratory rather than on material which is under the general control of an associate. For these reasons it seems to me that the burden of the work on patients must ever fall on the clinical department itself. The scientist who wishes to test his methods or to solve his problems on patients should be ever welcome to the wards, but the clinician cannot lightly shift the responsibility of his own problems to the shoulders of his scientific brother. Men trained in the methods of physiology and of biologic chemistry are indeed needed in the clinic, but these men should belong essentially to the

clinical department and in general they must look for advancement in clinical medicine rather than in the fundamental sciences.

It has also been suggested that whenever the problems of the clinic can be submitted to animal experiment these experiments should be undertaken by men who devote themselves particularly to this line of work. The problems of the infectious diseases have been effectively studied by such specialized workers in bacteriology and kindred subjects; to a lesser extent the problems of pathologic physiology also, so far as these can be studied on animals, are now passing into the hands of workers in experimental medicine or experimental pathology. We cannot but welcome the advent of such departments, which furnish a vigorous stimulus to the study of clinical problems, and teach younger men the scientific aspects of internal medicine; but here again we should not lose sight of the fact that the problems of experimental medicine are derived in the main from the clinic and that the closest interrelation must exist between the two fields. The worker in the clinic should be able at all times to submit his special problems to animal experiments; the results of animal experiments must, moreover, be further tested out on patients in order that conclusions may be rendered valid from the clinical point of view. However much one welcomes the coming of experimental medicine as a separate field of work, its advent cannot be expected to exclude the clinician from the animal laboratory. He more than any other is in a position to be familiar with the exact nature of the problems which arise in the hospital and with the possible applications of animal experiments to medical practice, and he occupies a natural point of vantage in dealing with the problems of pathologic physiology which arise in the clinic.

The position of internal medicine in Germany at the present day is so commanding that it would be well to consider some of the factors which have favored its development in that country. Aside from its organization and methods of academic advancement, one of its striking features is the combined study of theory and practice. Friedrich Müller has pointed out that in contrast to the German school of medicine, the English and American schools have approached clinical medicine much as one would approach trade, which is to be learned by precept and by practice. Valuable as such an attitude may be in the training of medical practitioners, it leaves much to be desired when it comes to the development of medical leaders. For them at least, internal medicine is not simply an application of the healing art; it is also a rapidly growing science. They must be ready, on the one hand, to try all methods of treatment, rational or empirical, proved or doubtful, when called on to alleviate suffering; on the other hand, they must preserve a rigidly scientific attitude when they attempt to interpret clinical phenomena or therapeutic results. Flimsy speculations must be replaced by theory that is based on accurate observation and carefully planned experiments, for no road is too long if the results obtained are decisive. Clinical theory and clinical practice are so intimately bound up in each other that they must advance together; any proposal to divorce the one from the other cannot be regarded as sound in principle.

It must be admitted, however, that the clinician meets difficulties when he attempts a systematic study of the disturbances of function encountered in his patients, or indeed when he attempts to carry out any laborious clinical investigation. These difficulties arise mainly from the absorbing and time-consuming character of his routine duties. He is expected to be a good clinician, expert in the diagnosis and treatment of disease, and the patients entrusted to his care are certainly entitled to the best services that can be rendered. He must often be a teacher, an administrator, and even something of an architect. When to his hospital and academic duties a large private practice is added, little time or energy can be left for carefully planned, systematic investigations which often lead outside the usual routine of medical practice. Exceptional persons will, of course, rise above an unfavorable environment; but experience has shown that in order to have that continuous stream of scientific productiveness which brings rapid and stable advances in our knowledge, the conditions of work must be favorable both to the exceptional person and to the larger number of earnest and capable men who make up the rank and file of scientific investigators. And nowhere, it seems to me, is carefully planned and systematically executed work more needed than in our hospitals. To furnish proper facilities and an efficient organization for such work is one of our pressing problems if we are to attain and hold an international position in the progress of internal medicine.

If carefully conducted research be regarded as a fundamental duty of the medical clinic, it is evident that our clinics must work toward a higher type of organization. Trained assistants must be retained over relatively long periods of time so that they may acquire perfect familiarity with hospital practice and at the same time have time and means at their disposal for investigation. The training acquired during these long years of service should come to be recognized as the best preparation for consultation practice or for an academic career. Such experienced assistants can relieve the clinical chief of much routine work. He in turn must give his best energies to the clinic, and private practice must not become a burden on his time. I think that the proposal to eliminate his private practice altogether would prove an interesting experiment, although one cannot foresee all its far-reaching consequences. To restrict his private practice to the hospital consulting-room and private ward would be a less radical step and would give the clinical head far greater scientific opportunities than he usually enjoys. It would place at his disposal all the machinery of the clinic and would allow him to spend all of his time in his hospital and laboratory.

Time might also be conserved by relieving certain clinicians of the care of the general medical service and by placing under their immediate control only those patients who are suffering from the diseases in which the clinicians are particularly interested. Such a research clinic has its manifest advantages in the way of concentration. In a medical school, however, it could not in itself furnish training in the diagnosis and treatment of the various diseases with which the practitioner must be familiar, and it would have to be supplemented by a more general department of internal medicine. It may be that our medical schools are drifting toward such research clinical departments, but it has always seemed to me that such a separation in the school of the practical training in clinical medicine from its theoretical or research aspects would be unfortunate in many ways and especially for the student who needs not only a familiarity with medicine as a descriptive science but also some acquaintance with the application of exact methods and reasoning to clinical work so that he may experience the difference between speculative and well-founded explanations for disease phenomena.

CONCLUSION

It seems to me that it is the duty of specialists in internal medicine to study the diseases which come within their sphere of activity with all the scientific care and accuracy attainable. Studies in pathologic physiology which belong to this field are often time-consuming and demand special training and equipment; and, with the increasing complexity of medical knowledge, such studies will demand more and more from the clinical staff. To meet these increasing demands it is becoming more and more imperative that the clinical staff should be highly trained and should devote the major part of its energies to the hospital. Only in this way can we hope to attain our full growth in the scientific development of internal medicine.

STUDY OF A CASE OF CONGENITAL HEMOLYTIC JAUNDICE *

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The entire subject of hemolytic jaundice is to-day one of especial interest not only because of the rarity of the condition and its important bearing on obscure diseases of the blood and spleen, but also on account of the scant attention which it has received in text-books on medicine and the few articles concerning it which have appeared in this country. Notable exceptions to this latter statement are the excellent contributions by Tileston and Griffin[1] and Thayer and Morris,[2] in both of which personal observations on cases are reported and the history of the disease with its characteristic features ably discussed.

The term "congenital hemolytic jaundice" is applied to a rare condition of unknown etiology, characterized by a chronic non-obstructive jaundice, splenomegaly, urobilinuria, and an anemia, which, dependent on hemolysis, shows, on the one hand, evidence of marked destruction of the red blood-cells and, on the other, signs of their continuous active regeneration. A history of heredity has been a prominent feature in many cases, to which, therefore, the name "familial hemolytic icterus" has been applied. In addition, a closely related type of the disease can be definitely recognized, namely, the acquired. It is also probable that certain border-line cases do occur, as those of Chauffard and Troisier[3] and Aschenheim,[4] which cannot with precision be placed in either group.

The following is the report of a typical case of the "congenital" type which has been under observation for the past year:

History.—Margaret R., aged 23, married, housewife, was admitted to the University Hospital (University of Minnesota) April 5, 1912, complaining of jaundice and a "swelling" in the upper left abdomen. Adopted at the age of 4½ months, the patient knows nothing of her parents and has never been able to learn anything concerning them. She was jaundiced when adopted and was said to have been so since birth. Jaundice varying in intensity has persisted ever since, but has not been accompanied by any of the symptoms of biliary intoxication, such as pruritus, hemorrhages and languor. The icterus has not been noticeably increased by muscular exertion or fatigue, or at the menstrual periods. The stools have never been clay-colored at any time so far as the patient knows. Menstrual history is normal. The patient married at 18 years; she had two children; the first was still-born; the second premature (seventh month) and did not live. At the age of 6 years she had a severe attack of inflammation of the joints with fever, and pain in the region of the heart. Between the ages of 1½ and 14 years the patient was subject, at intervals varying from a few months to a year, to attacks of abdominal pain accompanied by vomiting, fever and a decided increase in the jaundice. At such times the stools, so far as she knows, were normal in color. After one of these attacks, at 13 years of age, the patient was seen by a physician who has informed us that at that time the jaundice was marked, there was a distinct anemia and nothing abnormal was detected on examination of the abdomen. Six months later Dr. J. E. Moore performed a cholecystotomy and removed several gall-stones. Following this, the patient believes that she was free from jaundice for a year and a half, after which it again returned. In 1909, after an unusually severe attack of abdominal pain with "chills and fever," her spleen was discovered to be enlarged.

Since that date the patient has had three febrile attacks, each accompanied by an exacerbation of the jaundice and a distinct sense of swelling in the upper left abdomen. These seizures have not been attended, however, by chills or abdominal pain. Stools, as in previous attacks, were never clay-colored. In the last attack before admission (March, 1912), fever ranged as high as 103 to 104 F. for a day or two, the jaundice was intense and the swelling in left abdomen (spleen) was marked.

Physical Examination.—April 5, 1912. The patient is a well-nourished young woman remarkably free from all discomfort. The skin of the entire body and the sclerae are jaundiced a deep orange-yellow. The mucous membranes are somewhat pale. The tongue is clean. Pupillary and other reflexes are active. Intelligence is keen. There is no adenopathy. The heart is 12.5 cm. in width. A soft systolic murmur, only slightly transmitted, is heard at the apex; another, louder than the first, with its maximum intensity in the first left interspace, is heard at the base. Pulse is regular, 80 to 84 per minute. Systolic blood-pressure is 116. Lungs are negative.

The spleen is greatly enlarged. The edge is readily palpable 8 cm. below the costal margin, descending on deep inspiration somewhat beyond the umbilicus. On bimanual palpation it is freely movable, very firm and free from tenderness.

The liver is slightly enlarged; the upper border is at the fourth rib in the mid-clavicular line; the lower border, soft and palpable, is just below the costal margin.

Laboratory Findings.—Urine: Usually highly colored. Traces of albumin present on several occasions. Sugar absent. No indican. Bile negative. Urobilinogen (paradimethylaminobenzaldehyd) and urobilin (Schlesinger's; spectroscopic) reactions strong. Microscopically nothing significant.

Stools: Deeply pigmented. No blood, pus, ova or parasites. Corrosive-sublimate test shows hydrobilirubin. No bilirubin.

Blood: Records prior to our own: March 21, 1904, red blood-corpuscles 3,850,000; white blood-corpuscles 13,250; hemoglobin, 47 per cent. April and May, 1912, average count red blood-cells 2,600,000; white blood-cells 7,000 to 9,000; differential, polymorphonuclear neutrophils from 50 per cent. to 60 per cent. and lymphocytes from 30 per cent. to 40 per cent.

Our own observations on the blood are as follows: March 20, 1913: Red blood-corpuscles 2,600,000; hemoglobin 45

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelope.

1. Tileston and Griffin: Am. Jour. Med. Sc., 1910, cxxxix, 847.
2. Thayer and Morris: Bull. Johns Hopkins Hosp., 1911, xxii, 85.
3. Chauffard and Troisier: Bull. et mém. Soc. méd. d. hôp. de Paris, 1908, Series 3, xxv, 411.
4. Aschenheim: Quoted from Türk: Klinische Haematologie, 1912.

per cent. (Fleischl-Miescher); color index .87; white blood-corpuscles 10,800. Differential count of 500 cells (Wright's stain):

Polymorphonuclear neutrophils	66.6%
Lymphocytes	22.0%
Large mononuclears	6.2%
Transitionals	3.0%
Eosinophils	0.6%
Basophils	1.0%
Degenerate forms	0.6%

In April and June similar findings were noted except for a greater number of leukocytes (12,000 and 12,800) and a slightly higher percentage of polymorphonuclear neutrophils. Red cells have constantly manifested microcytosis, anisocytosis, anisochromia and polychromatophilia. Poikilocytosis is slight. Many erythrocytes contain basophil granules; a few show Jolly-bodies. Erythroblasts are very rare. Platelet count (Wright's method), 240,000 per cubic millimeter. Coagulation time, normal.

Osmotic resistance of erythrocytes:

	Initial hemolysis	Complete hemolysis
March 20, 1913, whole blood	0.72 % NaCl	0.46 % NaCl
April 30, 1913, whole blood	0.65 % NaCl	0.40 % NaCl
April 30, 1913, washed corpuscles	0.675% NaCl	0.475% NaCl
June 6, 1913, whole blood	0.70 % NaCl	0.40 % NaCl
June 6, 1913, washed corpuscles	0.80 % NaCl	0.45 % NaCl

Blood-serum: Clear, bright golden yellow, without a trace of hemoglobin. Syllaba's test (modification of Conner and Roper)[11] shows a strong reaction for bilirubin. Urobilin not detected. Patient's washed corpuscles not agglutinated by her own serum. Freezing point of serum — .58 C. Wassermann reaction negative.

Operation.—On May 18, 1912, at the patient's request, a laparotomy was performed. A much shrunken gall-bladder, not containing any calculi, was removed. The patient was discharged from the hospital June 8, 1912.

Present Condition.—June 6, 1913: During the past year the patient has felt remarkably well and carries on her household duties without difficulty. She had been quite free from any of the acute attacks until recently when she went through a rather milder one than usual. The jaundice, as hitherto, has been constant, though at times it is slightly less marked than at others. The spleen is firm and greatly enlarged, the lower edge being 12 cm. below the costal margin. The lower border of the liver is felt a trifle lower than it was a year ago and is also slightly firmer. Patient has been kept constantly on iron, as she finds that if it is discontinued she soon begins to feel somewhat weak.

COMMENT

The study of this case brings out prominently the important features of congenital hemolytic jaundice, which may be classified as (1) jaundice, (2) splenomegaly, (3) diminished osmotic resistance of the erythrocytes, (4) anemia with characteristic blood changes, and (5) urobilinuria.

Jaundice.—Essentially chronic in type, this symptom usually dates from birth or early infancy, but may not appear until later. Pigmentary in character, it does not give rise to any of the symptoms usually ascribed to the presence of bile salts in the blood (itching, bradycardia, progressive emaciation) and is unaccompanied by clay-colored stools or bilirubinuria. In the case under observation the rapid deepening of the icterus during the periods of exacerbation (*crises hémolytiques*) has been a striking feature. At these times, and for a long period after, the color of the skin has been a deep golden yellow. An interesting point is the history of its disappearance during the one and one-half years following cholecystotomy in 1903. This may merely have been one of the periods of intermission so characteristic of the disease, and it is highly probable, in accordance with Chalier's[12] observations, that a subicteric tint was actually present, though unnoticed by the patient.

Splenomegaly.—Particularly during the exacerbations or the so-called "crises" of the disease, splenomegaly may be extreme, the splenic border frequently extending well beyond the median abdominal line. Pain, usually of a colicky nature, may occur in the splenic region, as in the case of Vaquez and Giroux,[13] in which a splenectomy (with fatal outcome) was performed to relieve it. Following the attacks the splenic tumor distinctly subsides but never entirely disappears, usually being left somewhat firmer and larger than before. In our case the increase in size of the spleen during the crises takes place rapidly, to such an extent, in fact, that the patient herself is conscious of its growth.

Diminished Osmotic Resistance of Erythrocytes.—Studies of the globular fragility in conditions of obstructive jaundice, especially in the classical work of Vaquez and Ribierre,[14] had demonstrated an augmentation of resistance to hemolysis by hypotonic salt solution. The method devised by Ribierre[15] for this investigation was simple and ingenious. Making use of it Chauffard investigated the resistance of the corpuscles in three cases of chronic acholuric icterus. In sharp contrast to the findings in obstructive jaundice, these cases presented a markedly diminished resistance. While in normal individuals, according to Chauffard, hemolysis commences at 0.44 per cent. and is complete at 0.36 per cent., in the three cases observed by him the first appearance of hemolysis occurred at 0.62 per cent., 0.66 per cent., and 0.52 per cent., respectively. Widal and his associates later observed diminished corpuscular resistance in acquired types of the disease, bringing out the fact that it was more marked if the corpuscles tested had previously been separated from their plasma. While this discovery applied to congenital as well as acquired hemolytic jaundice it was of particular value in the latter condition, in some cases of which the corpuscular fragility may be so little altered that its increase can be detected only when deplasmatized cells are used. In normal persons little or no difference exists between the fragility of corpuscles in whole blood or when freed from plasma. Throughout the cases of hemolytic jaundice described since the work of Widal and Chauffard, diminished osmotic resistance has appeared to be a practically constant feature. In a few instances, such as those of Lommel[16] (familial) and Mosse[17] (acquired), exception must be made.

In testing the osmotic resistance we have employed a technic rather more precise than Ribierre's. In each of twenty-four small test-tubes (from 7 to 8 mm. in caliber) is placed 1 c.c. of graduated standard solutions of sodium chlorid, differing in strength by 0.025 per cent., and progressively diminishing from 0.85 per cent. to 0.275 per cent. Twenty c.mm. of blood, obtained by puncturing the finger, are measured into each tube (the pipet furnished with the Sahli hemoglobinometer is convenient for this purpose) and immediately thoroughly mixed. A sufficient quantity of blood (from 1 to 2 c.c.) is also collected in citrated salt solution (0.85 per cent. each of sodium chlorid and sodium citrate). After centrifuging and washing twice in 0.85 per cent. salt solution a 50 per cent. suspension is employed in

11. Conner and Roper: Tr. Assn. Am. Phys., 1908, xxiii, 222.

12. Chalier: Thesis, Lyons, 1909.
13. Vaquez and Giroux: Bull. et mém. Soc. méd. d. hôp. de Paris, 1907, Series 3, xxiv, 1184.
14. Vaquez and Ribierre: Compt. rend. Soc. de biol., 1902, liv, 1074.
15. Ribierre: Thesis, Paris, 1903, described by Chauffard, Semaine méd., 1907, xxvii, 25.
16. Lommel: Deutsch. Arch. f. klin. Med., 1912, cix, 174.
17. Mosse: Berl. klin. Wchnschr., 1913, l, 684.

the same way as the whole blood. As soon as the corpuscles have settled to the bottom of the tubes, the degrees of hemolysis are observed by noting the color of the supernatant fluid and the amount of sediment. Ordinarily only the points of initial and complete hemolysis are of importance. The dilution employed (1 to 50) seems to us to be more satisfactory than stronger mixtures in which the concentrations of the solutions are materially altered by the presence of salts in the added blood.

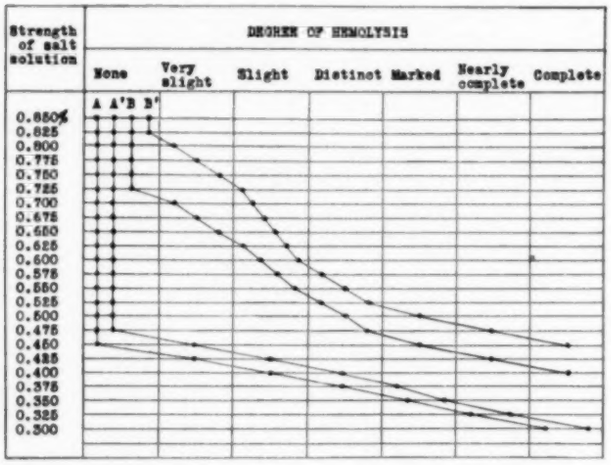

Fig. 1.—Diminished osmotic resistance of erythrocytes of patient with congenital hemolytic jaundice. A, results of testing corpuscles of normal adult (control), whole blood; A', same, washed corpuscles; B, patient's whole blood; B', patient's washed corpuscles. Note especially the higher point at which the patient's corpuscles show initial (very slight) hemolysis. Separating the corpuscles from their plasma has produced little effect in the control but has considerably increased the fragility of the patient's cells.

Anemia with Characteristic Blood Changes.—An anemia of moderate degree is almost invariably present in congenital hemolytic jaundice. The number of red cells is reduced, usually to between three and four million, less frequently below three. Counts below two million are seldom noted. The percentage of hemoglobin is correspondingly reduced, so that the color index remains near 1, but it may be higher or lower. The number of leukocytes appears to vary; most often normal or diminished, at times a slight leukocytosis occurs, as in our own patient. The relative percentages of the varieties of white cells show no constant variation from normal. In exacerbations of the anemia the presence of a few myelocytes is often noted.

While none of the foregoing changes are to be regarded as in any way distinctive, certain morphologic changes in the erythrocytes are of much greater significance. These have been of special interest to us in the study of our case. In comparison with the degree of anemia indicated by the reduced numbers of red cells, the latter show unusual variations in size, with but slight variations in shape. At the same time the average diameter of the corpuscles, as Chauffard noted, is greatly diminished. The latter feature is best brought out by comparison with the normal blood. In Figure 2, A and B are photomicrographs with the same magnification of preparations of blood from a normal individual and our patient respectively. In examination of the latter specimen alone one might easily mistake the large cells in the patient's blood for macrocytes. Comparison, however, shows them to be no larger than the largest cells in the normal blood.

Measurements of 1,000 erythrocytes in thin films of the patient's blood served as the basis for the construction of the curve in Figure 3 (diameters measured to the half micron with Zeiss Messokular No. 3). In this, anisocytosis is evidenced by the extremes in size and by the fact that only half as many erythrocytes (30 per cent.) approximate the mean diameter as in the normal curve (60 per cent.). The average cell (5.8 microns of this patient's blood is a microcyte, since cells of less than 6 microns in diameter are regarded as such. While anisocytosis is so marked in this disease, poikilocytes are few. Not more than 2 per cent. of the cells in our case could be considered sufficiently deformed to come under this head. Among them, however, were many bizarre forms, including small thread-like bodies and dumb-bells. Small bodies from 1 to 2 microns in diameter occasionally noted were considered schistocytes. No less striking than the variations in size are those in the staining qualities of the red cells. These changes are of two types. A moderate degree of polychromatophilia is present, affecting from 2 to 3 per cent. of the cells. Anisochromia, or variation in the depth of staining, is extreme, with all gradations from small, intensely hyperchromatic cells to large pale ones. The pale central depressions are not increased as in chlorosis.

The presence of nucleated red cells has been observed in some cases of hemolytic jaundice. With the degree of anemia manifested in our case it is rather surprising to find so few, only one normoblast being observed in searching several preparations. Other structures, nuclear in nature (sometimes noted in other anemias), are more numerous, namely, the so-called Howell or Jolly bodies (Fig. 4, b). These are small, round, sharply outlined bodies occurring in a few of the larger erythrocytes. They may be centrally located, but are

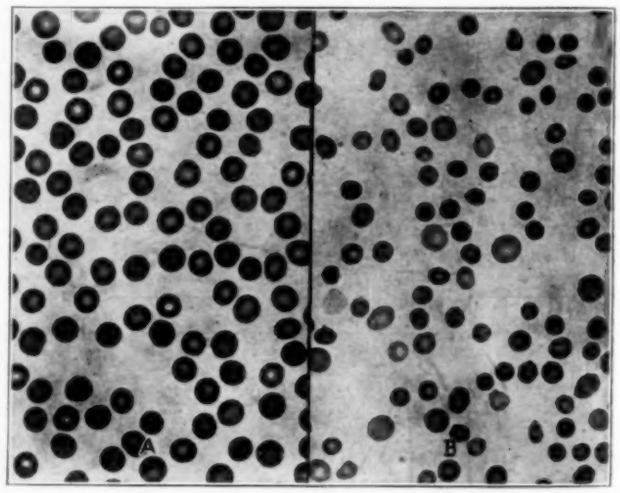

Fig. 2.—Photomicrographs (same magnification) showing blood of patient with congenital hemolytic jaundice (B) in comparison with normal blood (A). The patient's corpuscles show marked variation in size with considerable reduction in the average diameter, the largest erythrocytes being no larger than those of normal blood.

more often eccentric. With Wright's stain these particles appear purple, indicating their chromatin content and nuclear origin.

Many of the erythrocytes contain inclusions different in nature from those previously mentioned. These are large, coarse, irregularly shaped basophil granules (Fig. 4 b) which are colored blue with Wright's stain in con-

trast to the purple of nuclear structures. While one ordinarily has to search before finding a Howell-Jolly body, the cells with basophil granules are noted in nearly every field. These structures generally occur singly; less frequently two or more may be noted in the same cell. The ordinary punctate basophilia, frequently noted in anemias, and especially in lead poisoning, is lacking. Since these observations, Jolly bodies and basophil granules have been mentioned as occurring in a case of hemolytic jaundice (acquired type) by

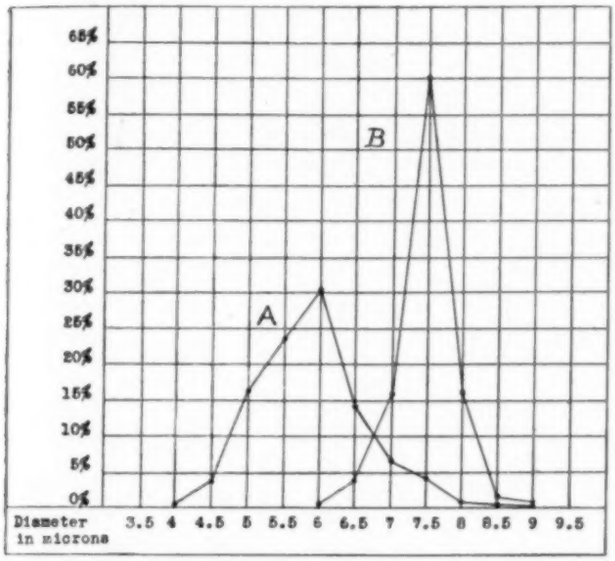

Fig. 3.—Anisocytosis and marked decrease in size of erythrocytes in congenital hemolytic jaundice. A, measurements of patient's corpuscles (average diameter of 1,000 cells 5.8 microns); B, composite curve, for comparison, from two normal adults (average diameter of 500 cells 7.48 microns).

Huber,[19] who states that these findings had not hitherto been described in this disease. As he remarks, the granules may easily be mistaken for a granular precipitate occurring on the surface of the film.

Attention was first directed by Chauffard and Fiessinger[20] to the presence of certain other granular structures in the blood of patients with hemolytic jaundice. When fresh blood is treated with a basic dye by one of the methods of "postvital" staining, some of the red cells show a peculiar network of threads or granules, termed the "substantia granulo-recticulo-filamentosa." These structures, which cannot be demonstrated in fixed smears and are not identical with punctate basophilia, are seldom found in health in more than 1 per cent. of the corpuscles. In various anemias they may reach 10 per cent., but are seldom more numerous. Their abundance in cases of hemolytic jaundice establishes a point of considerable diagnostic importance. In most instances percentages of ten to thirty may be noted; in a few, more than one-half of the cells have shown granules. While these basophil structures are not understood, they are generally believed to be of plasmatic rather than nuclear origin, and to correspond to the polychromatophilia of fixed and stained smears. Such a correspondence seems doubtful when such discrepancies in numbers are noted as occurred in our own case, in which less than 5 per cent. of the erythrocytes were distinctly polychromatophilic, but 32 per cent. showed granules by "postvital" staining. Being generally regarded as representing unripe or immature forms because of their content of basophilic substance, the high precentages of these "granular corpuscles" are evidences of unusually active regeneration of blood. It does not seem unreasonable to credit the granules which we noted in stained smears with the same significance.

We have obtained satisfactory preparations by collecting a few drops of blood in a centrifuge tube containing physiologic salt solution, in which enough brilliant cresyl blue has been dissolved to render the mixture opaque. In half an hour the suspension is centrifuged. A loopful of sediment mixed with a loopful of serum is spread in a thin film on a slide, fixed by heat and mounted in balsam. In the preparation shown in Figure 4 a, 32 per cent. of the cells contained various amounts of granular substance.

The blood-serum in these cases has been found to be markedly hypertonic according to the results of a few investigators, Starkiewicz[21] even reporting a freezing point of — 0.87 C. in one instance. Our own observation has not confirmed this, but slight alteration being noted (— 0.58 C.).

Urobilinuria.—This may be regarded as an index of the amount of hemolysis which is taking place in the body. With excessive hemolysis leading to an increased excretion of bilirubin into the intestine it is natural to expect a corresponding increase in the amount of its reduction product, urobilin, which in McPhedran and Orr's[22] case amounted to six times that in the stools of a normal control. It is possible that, as Huber believes, the liver, already taxed with an increase in its bile-forming function, is unable to modify all the urobilin that is absorbed and hence it is passed into the circulation and excreted in the urine. The usual failure to detect urobilin in the serum of these patients may possibly be explained by faulty methods. Bilirubin, on the other hand, is constantly present in the serum, rarely, if ever, in the urine.

Fig. 4.—Drawings showing features indicating active regeneration of blood in congenital hemolytic jaundice; (a) actual field showing "granular corpuscles" (postvital staining); (b) from fixed specimen (Wright's stain) showing large erythrocyte containing a Howell-Jolly body, and smaller cells with coarse basophil granules.

PATHOGENESIS

The true cause of hemolytic jaundice cannot yet be said to have been established. The characteristic feature of the condition—diminished osmotic resistance of the red blood-cells—is the basis for the belief that the tangible evidences of the disease depend on excessive hemolysis. This view is generally held notwithstanding

19. Huber: Berl. klin. Wchnschr., 1913, l, 681.
20. Chauffard and Fiessinger: Bull. et. mém. Soc. méd. d. hôp. de Paris, 1907, Series 3, xxiv, 1169.
21. Starkiewicz: Quoted in Chalier's thesis: Rev. de méd., 1909, xxix, 61.
22. McPhedran and Orr: Canad. Med. Assn. Jour., 1913, iii, 14.

the fact that Widal and Philibert[24] found that the serum in congenital hemolytic jaundice did not exercise any abnormal hemolytic effect on human red blood-cells. Widal and his school believed that the destruction of the erythrocytes took place in the blood itself, that the bile-pigment formation was hematogenous, and that the splenomegaly was secondary to the enormous work thrown on it by the corpuscular destruction. Minkowski, Chauffard and others, on the other hand, believed that the seat of the excessive hemolysis lay in the spleen. Banti, as a result of the remarkable and lasting effects following splenectomy in his own case and in those of Micheli and Umber, has recently expressed his strong conviction that, in one type at least of hemolytic jaundice, the primary and principal lesion is without doubt in the spleen, its enlargement being due to an excessive increase of its normal function (destruction of erythrocytes). Karsner and Pearce[25] have shown that splenectomy in dogs increases the resistance of erythrocytes, not only to hemolysis by hypotonic salt solution, but also to the action of specific hemolysin.

TREATMENT

Banti[10] reports a permanent and complete cure following splenectomy, in 1903, in a case of acquired hemolytic icterus with diminished osmotic resistance of the red blood-cells and splenomegaly. Excellent results have also followed splenectomy in similar cases of Micheli[29] and Fiori[30] and in the case of Umber's[31] (considered by Banti to have been one of hemolytic jaundice). Roth's[32] patient (familial type) twelve years after splenectomy showed marked improvement, but was not completely cured. In Vaquez and Giroux's case, on the other hand, death followed splenectomy in two days.

Chauffard believed that surgical measures were distinctly contra-indicated in hemolytic jaundice. In many cases, as in our own, the continuous administration of iron has seemed to exert a beneficial effect. The malady in the majority of instances, particularly those of the congenital type, does not seriously interfere with the patient's enjoyment of life and capacity for work. A number, as in Tileston and Griffin's series of "family cholemia," have lived to a ripe age.

In view of these several facts, the wisdom of advocating splenectomy in any given case of hemolytic jaundice without a further knowledge of the true pathology of the affection and a clearer understanding of the functions of the spleen in general must necessarily be left an open question.

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ABSTRACT OF DISCUSSION

DR. W. S. THAYER, Baltimore: I have seen two cases of hemolytic jaundice which Dr. Morris and I reported a year or two ago. The first patient I have heard from repeatedly since. When I first saw her seven years ago she was 16 years of age. She had always been, so far as she knew, a healthy girl, but she as well as her parents noticed that she was slightly yellow, and more yellow at some times than at others. She had the appearance of a normal girl, with good color in her cheeks. On close examination, however, the mucous membranes were seen to be quite pale, and there was this distinct slight jaundice. She had a rather large spleen, coming a hand's breadth below the costal margin. She never had above three million red corpuscles; we did get her at one time up to three million six hundred thousand. Hemoglobin percentage was always between 60 and 70. She improved greatly on long-continued treatment with iodin. Dr. Richards' case shows rather more marked anemia than do congenital cases. Apparently a sharp distinction must be drawn between congenital cases and those which come on later in life; but the question arises, Are both one and the same condition, or is the power of resistance of the red blood-corpuscles something that varies with circumstances? There is reason to believe that the latter is the case from the instances of so-called acquired hemolytic jaundice.

There is much discussion as to the cause of jaundice in these cases. Is it truly a hematogenous jaundice in the sense that it is due to a destruction of the red blood-corpuscles without action of the liver, or shall we believe that there is a true jaundice that does not come from the liver? Hooper and Widal have asserted that in these instances of hepatic jaundice, the jaundice was apparently hematohepatogenous. Curiously enough, they seem to rely particularly on the interesting argument that in these cases there is rarely any slowing of the heart, and seldom any of those signs which we see in ordinary jaundice; therefore it is claimed that those signs which are due to the acids are not present, and we have no excessive coloring matter; but these investigators were unaware of the fact that it had already been definitely shown by King and Stewart that the cause of the slowing of the heart is not bile acids, but that in these cases bile pigments are present, and that under these circumstances the fact of the slowing of the heart is not particularly significant.

Broeger and Hooper have, however, shown definitely that bile coloring matter may arise in the circulation from blood coloring matter. The congenital cases, as a rule, need little treatment, except from the point of view of the cosmetic effect, but the acquired cases may be instances in which treatment is of great importance.

DR. JOSEPH L. MILLER, Chicago: We have under our observation a case of hemolytic jaundice in a boy of 19 years. He presents all the clinical and blood findings of the case described by Dr. Richards, with this exception, that the resistance of the boy's red blood-corpuscles to salt solution is practically the same as the normal, that is, it hemolyzes at .475. I am convinced, however, that this boy has a case of congenital hemolytic icterus.

There are several cases in the literature of this type in which there is apparently no disturbance of the resistance of the red blood-corpuscles. When we test the resistance of the red blood-corpuscles in a case of icterus of three or four months' duration and find this much increased, that is, that hemolysis takes place less readily than normally, perhaps at .03, and then compare the resistance of the corpuscles in a case of simple icterus with this one of hemolytic origin, we find after all a marked difference in the resistance of the red corpuscles.

About twenty cases of removal of the spleen have, I believe, been reported, and all the patients recovered. Some of these were cases of the congenital hemolytic type. We are trying to prevail on this boy to have his spleen removed.

DR. R. C. CABOT, Boston: I have had a case like Dr. Miller's in which the resistance of the red cells, apparently increased, was greater than normal; in other respects, it corresponded with his entirely—was a congenital case. I have seen cases just like it in every respect, except that they do not have jaundice.

I have been impressed with the fact that often these persons are not very sick—perhaps not sick at all. I have had difficulty in getting some of them to go into a hospital. They had no idea whatever of consenting to such an operation as the removal of the spleen, because they did not feel sick. In view of the fact that we have no other therapeutics to offer, whatever we have to say in relation to the removal of the spleen is important.

24. Widal and Philibert: Gaz. d. hôp., 1907, lxxx, 1275.
25. Karsner and Pearce: Jour. Exper. Med., 1912, xvi, 769.
10. Banti: Semaine méd., 1912, xxxii, 265; Sperimentale, 1912, lxvi, 91; Pathologica, 1911, No. 70; Ref. Centralb. f. allg. Path. u. path Anat., 1913, xxiv, 326.
29. Micheli: Wien. klin. Wchnschr., 1911, xxiv, 1269.
30. Fiori: Sperimentale, 1913, lxvii, 189.
31. Umber: Ztschr. f. klin. Med., 1904, lv, 289.
32. Roth: Ztschr. f. klin. Med., 1912, lxxvi, 23.

DR. ERNEST T. F. RICHARDS, St. Paul, Minn.: In view of the marked grade of anemia which is present in this case, the question of the acquired type has been ruled out by the history and the existing microcythemia and by the absence of the auto-agglutination phenomenon and of eosinophilia.

DR. W. C. JOHNSON, Minneapolis: In a well-developed case of congenital hemolytic jaundice the blood changes are striking and definite. It seems to me that it is nearly as easy to diagnose the condition from a blood-picture of the kind here shown as it is, for example, to diagnose a typical case of pernicious anemia. The special characteristics on which the diagnosis rests seem to depend principally on an extremely active regeneration of the red cells.

IMPORTANCE OF THE TUBERCULIN REACTION IN THE DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS *

V. C. VAUGHAN, JR., M.D.
DETROIT

Since the introduction of methods of application of the tuberculin test, the results of which are determined by means of the local inflammatory reaction occurring at the site of application, much discussion has arisen with regard to the best mode of procedure and the practical value of the results obtained.

That the tuberculin reaction represents a phenomenon of sensitization is now generally conceded, and, in order to understand fully its significance, it may be well to consider briefly the mechanism involved in the production of sensitization. Normally, foreign proteins as such do not gain entrance into the body. The most frequent pathologic state in which complex proteins do enter the body as such is represented by the bacterial infections in which the bacterial cells represent highly specialized

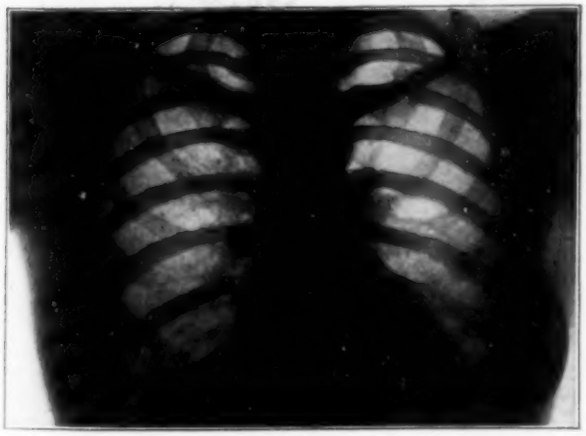

Fig. 1.—Patient 6, L. G., aged 30 years. Eye reaction negative; secondary reaction positive. Roentgenogram taken sixty months later shows two calcified areas in right lung; otherwise negative.

protein substances growing and multiplying within the body. Thus, when the tubercle bacillus enters the body, a specialized protein substance to which we apply the name tuberculin is produced. According to the theory advanced by Vaughan, in response to the presence of this foreign protein, certain body-cells are stimulated to the production of a special proteolytic ferment, through the action of which a chemical cleavage of the tuberculin occurs with the liberation of a toxic cleavage product, one of the effects of which is a decided irritant action on the tissue with which it comes directly in contact. This local reaction is characterized by hyperemia, increased secretion and, when marked, by the occurrence of minute punctiform hemorrhages, the latter being especially noted when the tissue involved is a mucous membrane or a serous surface. The degree of the inflammatory reaction obtained depends on the amount of the irritant poison which is present at any one time, or

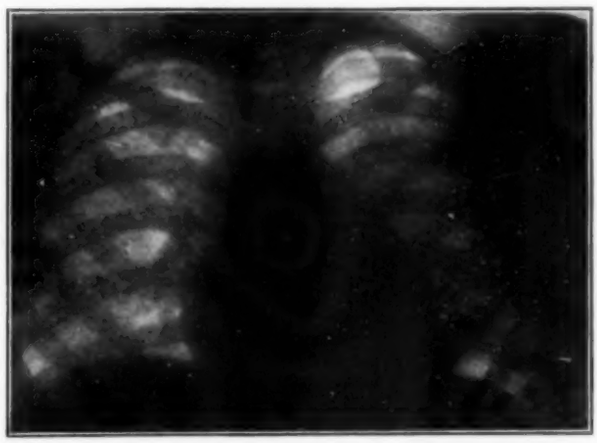

Fig. 2.—Patient 9, T. R., aged 10 years. Eye reaction, negative; secondary reaction, negative. Roentgenogram taken nineteen months later shows no definite signs of tuberculous disease.

perhaps better, on its concentration. This local inflammatory reaction, due to the effects of toxic substance liberated through the action of the specific ferment occurring in the body of the tuberculous on the tuberculin locally applied, forms the basis of the tuberculin test, whether applied to the abraded surface of the skin, the mucous membrane of the conjunctiva or as the percutaneous or intracutaneous reactions.

That there are limitations to the tuberculin test must be apparent to those who have had much experience with tuberculous disease. As we have seen, a positive test depends on a bodily reaction occurring as the result of tuberculous infection. The tubercle bacillus is, however, essentially parasitic in nature and, as is the case with all true parasites, has adapted itself to live as nearly as possible in harmony with its host. This is evidenced clinically by the fact that tuberculosis is essentially a chronic disease extending over a prolonged period of time and seldom giving rise to symptoms of acute illness. Anatomically the tubercle gives evidence of but slight irritative action of the bacillus on the body-cells, the characteristic giant-cell formation simulating closely the reaction occurring from the presence of an inert foreign body in the tissues. This being the case, it would not be strange if certain persons were found who would fail to develop a special ferment under the influence of tuberculin, and in these no tuberculin reaction would be obtained even though they themselves were the subjects of tuberculous disease. The mechanism of sensitization is an exceedingly delicate one and the important part played by individuality is well evidenced by the varied behavior of patients to sensitiveness following the therapeutic employment of serums.

In view of the before-mentioned facts it would appear that a method of testing the capability of the individual to produce an antituberculin ferment would materially add to any value which might be attributed to the tuber-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

culin test. When the ophthalmic reaction was first introduced it was noted that a suspicious number of persons who failed to react to the first instillation subsequently reacted to a second instillation in the same eye. This brought to mind the possibility of a local sensitization of the conjunctiva, a point which was first suggested by Rosenau and Anderson. In order to test the possibility of such an occurrence tuberculin was instilled into the left eye of an apparently normal person without any noticeable reaction. Ten days later the left eye was reinstilled, and at the same time the first application was made to the right eye. Within four hours a violent inflammatory condition was apparent in the left eye accompanied by purulent exudate, chemosis of the lids

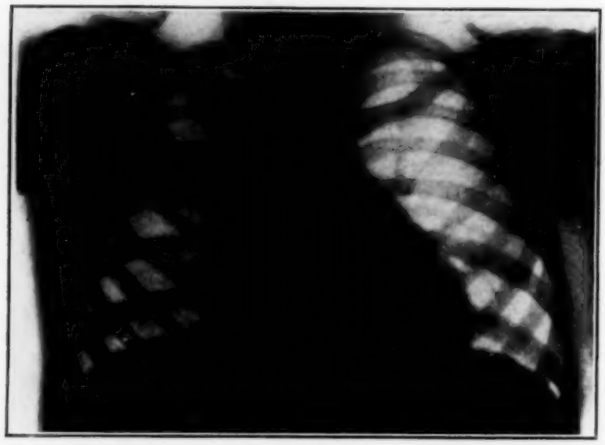

Fig. 3.—Patient 10, W. R., aged 9 years. Eye reaction, negative; secondary reaction negative. Roentgenogram taken nineteen months later shows signs suggestive of tuberculous infiltration at the right apex.

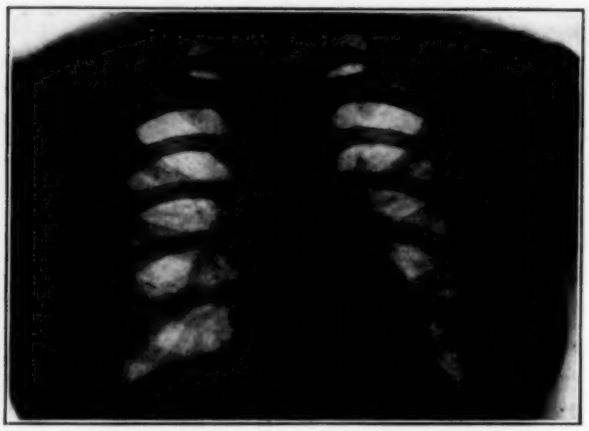

Fig. 4.—Patient 15, P. F., aged 15 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken twenty-six months later shows no sign of tuberculous disease.

and photophobia. The inflammation, however, was superficial in type and rapidly subsided, the reaction having disappeared completely in twenty-four hours. No reaction was apparent in the right eye as the result of the first instillation. This would seem to establish conclusively the local character of the sensitization. Attempts have been made to explain the secondary reaction on the ground of hypersensitiveness from preexisting healed tuberculous lesions, although it is difficult to explain the absolute local character of the sensitization on this ground. As confirmatory evidence of the truth of their theory, these authors refer to the work of Hamburger, who was unable to sensitize the conjunctiva of the newly-born by repeated instillations. I have tried to sensitize the conjunctiva of twenty-seven apparently normal children under one year of age, with the results given in Table 1. From this table it will be seen that I have obtained positive results in 29.2 per cent of the cases.

TABLE 1.—RESULTS OBTAINED FROM ATTEMPTS TO SENSITIZE THE CONJUNCTIVA IN TWENTY-SEVEN NORMAL CHILDREN UNDER 1 YEAR OF AGE

Case	Age, Months	Ophthalmo-reaction	Interval, Days	Secondary Reaction
1.	1¼	—	8	+
2.	1½	—	9	—
3.	1	—	8	+
4.	2	—	8	—
5.	2	—	9	—
6.	3	—	9	+
7.	3	—	9	+
8.	3	—	9	—
9.	3½	—	9	—
10.	4	—	8	—
11.	4	—	9	—
12.	5	—	8	—
13.	5	—	8	+
14.	5	—	8	—
15.	5	—	8	+
16.	5	—	9	—
17.	5	—	9	—
18.	7	—	8	—
19.	8	—	8	+
20.	8	—	8	—
21.	8	—	8	—
22.	9	—	8	—
23.	9	—	9	—
24.	9	—	8	—
25.	9	—	8	—
26.	10	—	8	—
27.	11	—	8	+

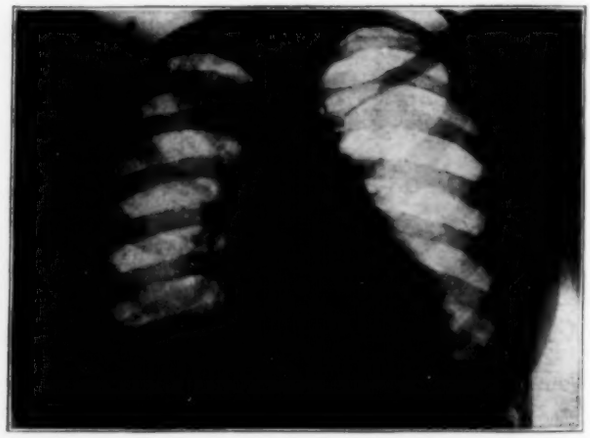

Fig. 5.—Patient 16, S. G., aged 26 years. Eye reaction, negative; secondary reaction, negative. Roentgenogram taken twenty-six months later shows no signs of tuberculous disease.

The conjunctival tuberculin reaction may be absent in tuberculous persons under the following conditions:

1. In rapidly advancing cases, as, for example, acute miliary tuberculosis, acute tuberculous pneumonia and tuberculous meningitis, as well as in the advanced stage of chronic pulmonary tuberculosis.

2. In early pulmonary tuberculosis in persons who are resistant to, or incapable of sensitization to tuberculin.

3. In persons who are the subject of healed pulmonary lesions of slight extent.

I. ABSENCE OF REACTION IN RAPIDLY ADVANCING CASES

In this class of cases if a primary instillation has been negative, I have never obtained a secondary reaction of sensitization following reinstillation in the same eye. The failure to react in these cases is probably due to an overwhelming of the body with tuberculin and a consequent exhaustion of the antituberculin ferment. In this connection it is interesting to note that seven third

stage patients who three years ago reacted positively to the ophthalmic test and in whom the disease has progressively advanced, fail at present to react to instillation in the same eye, with either a primary or secondary reaction. The failure of the test in this class is, however, of no importance with regard to the question of diagnosis.

II. ABSENCE OF REACTION IN EARLY CASES

That a certain percentage of early cases fail to react to the conjunctival test is well known. Thus Wolff-Eisner obtained but 75 per cent. of reactions in his early cases, whereas Baldwin obtained but 67 per cent. and Hamman and Wolman 60 per cent. In a series of 160 cases of early pulmonary tuberculosis I obtained a positive eye reaction in 72 per cent. From these figures it will be seen that the average percentage of positive

TABLE 2.—RESULTS OBTAINED FROM REINSTILLATION IN THIRTY-FIVE CASES

No.	Patient	Age, Yrs.	Eye Reaction	Secondary Reaction	Months Since Test	Present Condition
1.	B. S.	6	—	—	21	Actively tuberculous
2.	W. F.	8	—	—	45	Actively tuberculous
3.	J. H.	15	—	—	46	No signs
4.	H. D.	27	—	+	45	No signs
5.	M. H.	40	—	+	45	No signs
6.	L. G.	30	—	+	60	No active disease
7.	G. A.	14	—	+	38	No signs
8.	F. K.	14	—	—	24	No signs
9.	T. R.	10	—	—	19	No signs
10.	W. R.	9	—	—	19	Actively tuberculous
11.	C. W.	12	—	—	25	Actively tuberculous
12.	J. G.	12	—	—	24	No signs
13.	M. B.	17	—	—	29	Actively tuberculous
14.	J. D.	46	—	—	26	No signs
15.	P. F.	15	—	+	26	No signs
16.	S. G.	26	—	—	26	No signs
17.	M. K.	14	—	+	4	No signs
18.	A. R.	28	—	+	24	No signs
19.	G. F.	11	—	—	47	Tuberculous
20.	H. W.	8	—	+	1	No active disease
21.	G. G.	10	—	+	8	No signs
22.	M. B.	30	—	+	22	No signs
23.	D. S.	31	—	—	21	Actively tuberculous
24	J. S.	14	—	—	12	Actively tuberculous
25.	M. B.	33	—	—	7	No signs
26.	R. J.	5	—	—	3	Actively tuberculous
27.	H. N.	21	—	—	3	No signs
28.	H. K.	12	—	—	4	Actively tuberculous
29.	R. K.	10	—	—	18	Actively tuberculous
30.	M. M.	18	—	—	8	Actively tuberculous
31.	M. H.	28	—	+	3	No signs
32.	C. V.	28	—	+	60	No signs
33.	H. F.	28	—	+	60	No signs
34.	A. B.	38	—	+	10	No signs
35.	E. M.	10	—	—	12	Actively tuberculous

reactions occurring in early cases is about 68.6 per cent. As has been previously stated, we have in the repeated ophthalmic test a means of determining the capacity of the individual to react to tuberculin. One would expect that the percentage of positive reactions in early cases would correspond approximately to the percentage in normal persons who can be sensitized to tuberculin locally through previous instillation. That there is a rough approximation is seen by the fact that of 109 apparently normal persons who failed to react to the first instillation, sixty-seven, or 63.8 per cent., developed a secondary reaction of sensitization following reinstillation in the same eye. Whether or not a case of early pulmonary tuberculosis will react to the ophthalmic test is determined by the capability of the individual to produce an antituberculin ferment.

With this point in mind, when I have failed to obtain a positive reaction in suspicious cases I have always reinstilled, unless some special contra-indication existed. The results obtained in thirty-five cases, which have been observed over a considerable period of time, are embodied in Table 2.

From a consideration of Table 2 it will be seen that of the thirty-five cases, fourteen gave a definite secondary reaction while failing to give a primary tuberculous reaction. Of these patients, who have been under observation for a period of from one month to five years since the application of the test, none at present show any signs suggestive of tuberculous disease. In addition to physical examination, repeated observations with regard to pulse and temperature and inquiry concerning cough or loss in weight, roentgenograms were taken in eight instances during the past week. In all cases except Cases 6 and 20, the plates appeared normal so far as the lungs are concerned. Case 20 showed a slight mottling at the

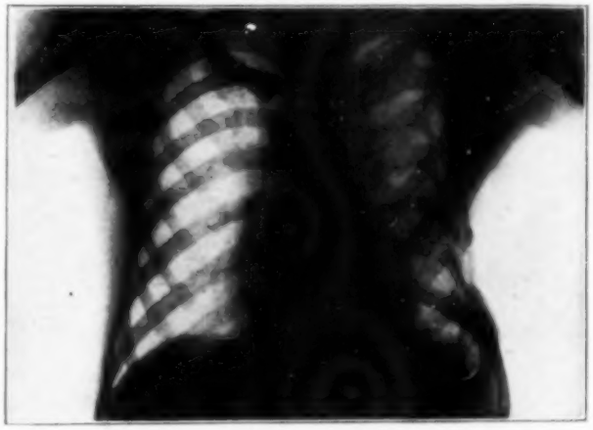

Fig. 6.—Patient 17, M. K., aged 14 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken four months later shows no sign of tuberculous disease. Uniform thickening of pleura on the left side due to the previous attack of empyema.

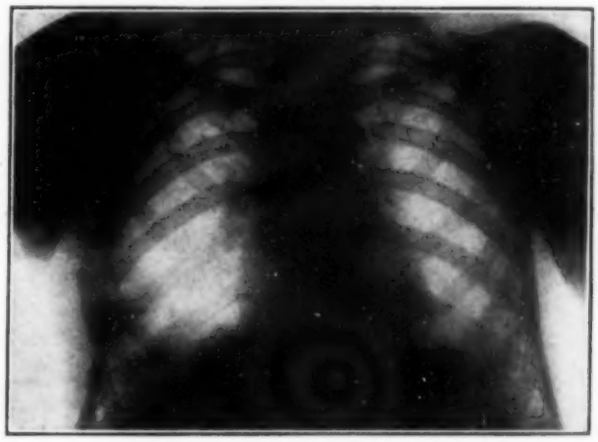

Fig. 7.—Patient 18, A. R., aged 28 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken twenty-four months later shows no sign of tuberculous disease.

apex which is suggestive of early tuberculous disease. This patient has been under observation for a relatively short time only, although the diseased process, if existing, is certainly inactive at present. Reference to Case 6 will be made later. Case 34 was particularly instructive.

CASE 34.—The patient, a woman, aged 38, had been under treatment for supposed pulmonary trouble for one year, during which time she had had constantly an afternoon temperature ranging from 99.5 to 100 F. The physical examination failed to reveal any signs in the lungs commensurate with an active process extending over so long a period. The application of the ophthalmic test was followed by a negative

result. Ten days later a marked secondary reaction was obtained. The improbability of the failure of the primary reaction in a person who could be so readily sensitized and who was suffering from supposedly active trouble led to grave doubts with regard to the correctness of the original diagnosis. A slight systolic murmur heard at the aortic area suggested the possibility of an aortitis, while the roentgenogram furnished strong confirmatory evidence with regard to this point. A positive Wassermann was obtained and permanent relief was secured under the employment of mercury and the iodids.

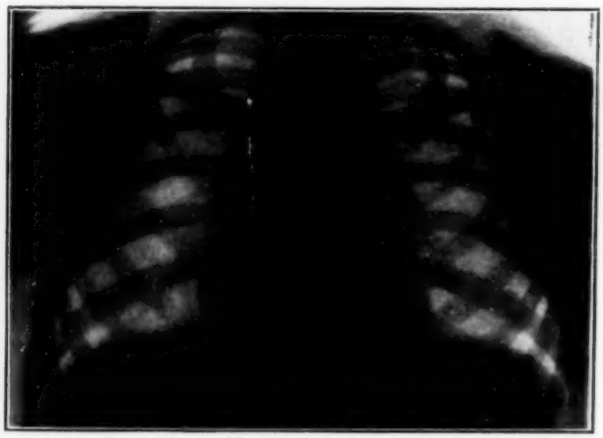

Fig. 8.—Patient 20, H. W., aged 8 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken one month later shows slight mottling at apex suggesting very early trouble. Patient, however, shows no physical signs of active trouble, nor is any elevation of temperature ever present.

In the twenty-one suspicious cases which failed to give either a primary or a secondary reaction thirteen patients have since proved to be actively tuberculous. Case 30 is of particular interest.

CASE 30.—The patient, aged 18, had presented herself for examination on account of slight cough, loss in weight and an anemic condition. She occasionally had a rise of temperature to 99.5 F. in the afternoon, although this was by no means constant. Examination of the chest showed a prolonged expiratory murmur at the right apex. No râles were heard at any time. The conjunctival test was negative, as was also the reaction for sensitization applied ten days later. This proved that the patient was incapable of sensitization to tuberculin, and consequently the test was of no value as an aid in diagnosis. The roentgenogram taken at this time gave evidence suggestive of trouble at the right apex. Subsequently the patient was informed by another physician that she was not tuberculous since she failed to show any reaction whatever to the von Pirquet skin test. About two months later the patient suffered an acute bronchitis of a week's duration, during which a few tubercle bacilli were found in one specimen of her sputum. They were not demonstrable before this time, nor have they been present since. The patient is at present in a sanatorium for the treatment of pulmonary trouble.

III. ABSENCE OF REACTION IN PERSONS WITH HEALED LESIONS OF SLIGHT EXTENT

In this connection Case 6 is of particular interest.

CASE 6.—A young woman, aged 30, presented herself for information with regard to the most desirable sanatorium which she might enter. On questioning, it was ascertained that she had been pronounced tuberculous on the strength of a positive von Pirquet reaction. Since no signs of active trouble could be found, an ophthalmic test was tried with a negative result. Nine days later a distinct reaction of sensitization was obtained in the same eye. We could not believe that a person who could be so well sensitized could be suffering with active disease and still fail to give a primary reaction. The patient was observed over a period of two months, during which she showed no signs whatever of active trouble and at the end of which she was informed that sanatorium treatment was unnecessary. The roentgenogram taken five years later shows two calcified areas beneath the fourth rib on the right side. The positive von Pirquet obtained may have been accounted for in this manner, and it brings forcibly to our mind the exceeding delicacy of this test.

METHOD OF ADMINISTRATION AND TYPES OF REACTION

I have never seen any ill effects as the result of the application of the conjunctival test. In this respect I am in accord with Baldwin and Hamman and other authorities who have employed it extensively. Hamman states that a second instillation should never be made in the same eye owing to the possibility of serious results and the lack of information obtainable from this source. In order to avoid accidents it is essential that the mode of procedure be thoroughly understood and strictly followed. I have always made use of tuberculin tablets, one of which dissolved in 5 minims of water gives a 1 per cent. solution. The container in which the solution is prepared, as well as the eye-dropper, is sterilized by boiling and the boiled water, still hot, is used for dissolving the tablet, the hot water decreasing the toxicity but not sufficiently to interfere with the reaction.

Two distinct types of reaction may be described. The tuberculous or primary reaction which occurs in connection with the first instillation in tuberculous persons, which we may consider as a reaction of infection, consists of a hyperemia of the mucous membrane of the conjunctiva of the lower lid and the inner canthus, occasionally accompanied by the formation of a slight exudate. The reaction is tardy in making its appearance, extends over a considerable period of time, reaches a moderate degree of severity and subsides slowly. The explanation of this is found in the fact that the tuberculin instilled is acted on by the antituberculin ferment

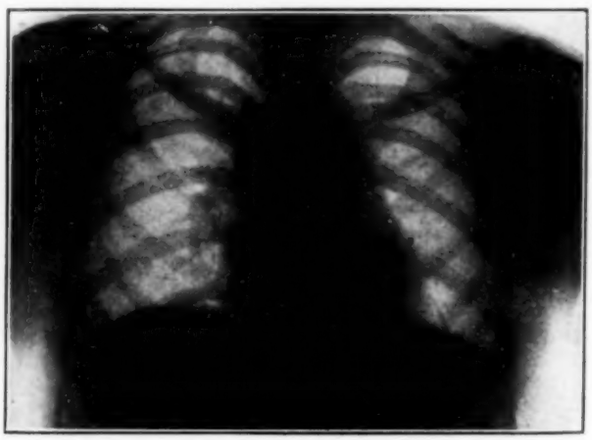

Fig. 9.—Patient 30, M. M., aged 18 years. Eye reaction, negative; secondary reaction, negative. Roentgenogram taken after sensitization test shows tuberculous infiltration at right apex, and also very slight involvement of left apex.

present in the fluids of a tuberculous subject. Since no large amount of ferment is active at any given time, the amount of tuberculin split up must be correspondingly small with the liberation of the toxic cleavage product in small amounts over a considerable period of time.

On the other hand, the reaction which occurs as the result of the second instillation in an eye which has failed to respond to a primary test is different in type.

In this instance no reaction follows the first instillation since in the non-tuberculous person no antituberculin ferment is present in the circulating fluid. As a result of the instillation, however, the cells of the conjunctiva develop this ferment which is stored up as a zymogen for future use. A reinstillation at the end of seven days activates this zymogen, the antituberculin ferment attacks the tuberculin instilled and, since present in large amount, liberates the toxic cleavage product at once and in comparatively large amount. For this reason the secondary reaction is characterized by rapid development,

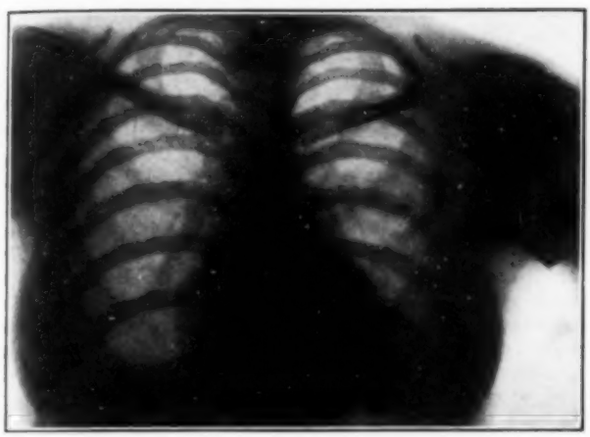

Fig. 10.—**Patient 7, G. A., aged 14 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken thirty-eight months later shows no sign of tuberculous disease.**

high degree of inflammatory reaction and rapid subsidence of symptoms. In applying the sensitization test these facts must be borne in mind. Thus whereas we employ a 1 per cent. solution for the first instillation, we employ a solution of 0.5 per cent. for the second instillation. After the first instillation patients are requested to present themselves for examination on the following day, but if a second instillation has been made the eye is examined at the end of an interval of four hours. At this time in the case of a sensitized reaction a distinct but mild reddening of the conjunctiva will be apparent. The reaction is reported as positive and the eye thoroughly washed with saturated boric acid solution. Under these precautions I have never seen any ill effects, nor, indeed, have I noticed any excessively severe reactions. One would expect that the instillation of stronger solutions of tuberculin into an eye which had previously failed to react to a weak solution might be productive of untoward results. I have always carefully examined the eye before performing the test and have refrained from using it if any inflammatory condition of the conjunctiva was present. It is possible that the phenomena of local sensitization may be demonstrated in other ways. I have of late attempted to apply the same mode of procedure to the nasal mucous membrane, but as yet am unable to report any results.

CONCLUSIONS

After continued study my conclusions with regard to the value of the ophthalmic reaction in the diagnosis of tuberculous disease which were first advanced in 1909, may be summed up as follows:

1. A positive reaction following the first instillation of tuberculin into the conjunctival sac is strong confirmatory evidence of the existence of tuberculous disease.

2. A negative reaction following the first instillation of tuberculin into the conjunctival sac is of no value in determining the presence or absence of tuberculosis.

3. A secondary reaction obtained in an eye previously unaffected by instillation is strong evidence against the presence of tuberculous disease, at least in an active form.

4. Failure to obtain a secondary reaction in an eye unaffected by previous instillation is of no value in determining the presence or absence of tuberculosis.

Washington Arcade.

ABSTRACT OF DISCUSSION

DR. RICHARD C. CABOT, Boston: Despite what Dr. Vaughan has said as to the safety of ophthalmic reaction, the experience of a large number of observers in different countries makes it dangerous to use the reaction. I should advise no one to use it. I have had it used on my own eye, but I would not have it used again.

In a young child the von Pirquet test is important evidence, but it is really of little value in adults; so many adults react because of the presence of latent tuberculosis, which has no practical importance to those persons. Most of us in this room would probably react at this time to the von Pirquet skin test. Sometimes when it is negative it is of value.

Subcutaneous injections of tuberculin are of value when they bring out local reactions at the seat of the disease; for example, they may be of value in showing the nature of the infection in the eye, knee-joint or lymph-nodes.

The Roentgen ray seems to me one of the most important means of evidence we have at present for showing "calcified nodules" in a tuberculous lung, and I use it constantly; but I object to the phrase "the Roentgen ray shows a calcified lung." I have seen calcified lungs demonstrated by a first-class roentgenologist, and when the case came to necropsy there was nothing of the kind there. What we ought to say is, the roentgenogram shows shadows, and nothing but shadows. It never shows pathologic processes. It is for us to interpret what those shadows mean.

DR. C. L. MINOR, Asheville, N. C.: I am extremely glad to hear Dr. Cabot dwell on the unreliability of the von Pirquet test. Patients are being sent away for tuberculosis on the evidence of a positive von Pirquet reaction alone, and yet it

Fig. 11.—**Patient 34, A. B., aged 38 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram shows no signs of tuberculosis. Note dilated arch of the aorta. This patient had a specific aortitis.**

has been proved absolutely that after the second year it is valueless, except as a negative test, as Dr. Cabot has pointed out. We cannot emphasize this too strongly and the test should be kept absolutely for use in pediatrics.

The Calmette test is undeniably very delicate, but I am not so brave as Dr. Vaughan. I have had one or two violent Calmette reactions that frightened me. It is the danger that patients may lose their eyesight that has held back the use of the Calmette test, delicate as it is. I am well satisfied with the subcutaneous test. If a physician is familiar with

it, I would say that it is safe for him to use it outside of the sanatorium.

I was glad to hear Dr. Cabot speak of the point made so long ago by Holzknecht and which is often forgotten; that the roentgenogram shows only condensation, and that drawing large conclusions from condensations is unwise. I am sure that Dr. Vaughan, who is an expert, will agree with me heartily at this point.

DR. F. M. POTTENGER, Monrovia, Cal.: I do not think a diagnosis of tuberculosis should ever depend exclusively on the tuberculin reaction in adults, but I do believe that it is of considerable value if studied properly. Tuberculin reactions differ as to their character, their intensity and the time of their appearance and, by the study of these variations, I feel sure that we can derive information that is valuable.

Theoretically, if a reaction comes on promptly, reaching its maximum within a comparatively short time, it shows the presence of a considerable number of antibodies (enzymes—Vaughan), and probably indicates that the patient is fighting an infection at the time. If this observation is true, those who are affected with active tuberculosis should react more promptly and reach a maximum earlier than those suffering from latent or quiescent tuberculosis, and old fibroid tuberculosis without apparent symptoms should probably reach its maximum extremely late. That has been my experience. In one case of this kind I found the maximum reaction on the fifth day and in another on the ninth, while in active tuberculosis the maximum is usually reached in from twenty-four to thirty-six hours. I have compared the results of the tuberculin test with my own physical examination in a number of cases, and I have found that cases which I considered active from clinical history and physical examination and the condition of the muscles showed a maximum reaction to the von Pirquet test within twenty-four hours in 78 per cent., while in those in which the disease was quiescent or partially quiescent, the maximum was reached after that time. I am desirous that others shall observe this point and see if my findings can be corroborated, bearing in mind, however, that different clinicians may examine the same patient and give entirely different opinions as to whether the patient is suffering from an active or latent lesion.

There is no one thing on which we should depend for the diagnosis of tuberculosis, neither the tuberculin test, the physical examination, physical history nor roentgenoscopy. It is only on data derived from all of these methods that we can make a satisfactory diagnosis.

Regarding the comparative value of roentgenoscopy and physical diagnosis, I would say that it depends entirely on the one who is making the diagnosis. One who is good in physical examination and poor at roentgenoscopy should depend on his physical examination. One who is an excellent roentgenologist and poor in physical diagnosis should depend for the most part on roentgenoscopy; but if a competent clinician can check his physical examination with the roentgenographer's work it is ideal. I have seen men depending on miserable Roentgen-ray work for their analysis of tuberculosis. I have also seen the diagnosis of tuberculosis based simply on the fact that there was a reaction to the von Pirquet test, and the patient sent thousands of miles from home, when nothing could be determined by the clinical history or physical examination to warrant the diagnosis. The diagnosis of tuberculosis is difficult, yet it can be made with certainty in a very large percentage of cases, even by men who are not specialists in this line, if the proper time and methods are employed.

DR. KENNON DUNHAM, Cincinnati: I should like to carry further what Dr. Cabot said in order to justify Dr. Hickey's diagnosis of that particular calcified area, the spot of increased density shown on the screen. It is perfectly true that the roentgenogram is nothing but the record of increased density. The Roentgen ray is merely an instrument for the detection of differences of density, and, as other things may cause density besides a tuberculous lesion, it is unwise for any man reading chest plates to speak of any form of tubercle. In this particular case, nevertheless, in which a special area had been mapped out as a possible seat of disease, and in which four or five years later a sharp, clean-cut area of increased density in this special region was shown on the plate, Dr. Hickey was justified in making the diagnosis of calcified area; for these areas are seen in dozens and dozens of lungs removed from the chests of cadavers, thus confirming the diagnosis made before death in patients who finally came to necropsy. There is probably nothing of which we can be surer than the fact than an area of that sort is an area of calcification. The question will arise, Are those areas of calcification due to tuberculosis solely, or to some other injury? The claim that the Roentgen ray can or cannot do this is a small matter. To know whether it can be said that tuberculosis is the sooner diagnosed by means of a roentgenogram or by means of a physical examination is not helpful. The fact remains that a carefully taken history, a careful physical examination, checked up by a competent Roentgen-ray examination, forms the procedure of most value.

DR. E. L. TUOHY, Duluth, Minn.: World-wide investigations with competent post-mortem examinations of infants have shown that the initial infection in tuberculosis is practically always in childhood. Ghon's statistics from St. Elizabeth's Hospital in Vienna give a reliable index of the frequency and the ages at which this infection occurs: very few in the first year, from 6 to 8 per cent. by the end of the third year, the percentage rapidly rising until at the fourteenth year about 92 per cent. had been inoculated. The inference is frequently drawn from this result that, if post-mortem examinations are carefully made, similar results will be found in practically all large centers of population. This initial lesion, barring a few minor exceptions, is an aerogenous infection of the lung with regional lymph-gland involvement following. This is referred to constantly in the German clinics as the primary "herd" of tuberculosis and, in general, corresponds to the primary lesion in syphilis. Out of this 80 or 90 per cent. who contract this primary nodule, at least 10 per cent. die in the tertiary stage of tuberculosis. Any one who has had this primary inoculation and reacted to it sufficiently to show the disease process will react to tuberculin. But the end-results show us that 70 or 80 per cent. of these persons are, in variable degrees, immunized against tuberculosis to such an extent that they die of something else. It becomes most important then not to tell the patients that they are tuberculous, but to tell them whether or not they are actively enough diseased to demand treatment. From this we may understand the manifold restrictions which surround the use of tuberculin in cases in which we do not depend on constitutional reactions.

Let me simply point out the observation made by Hamburger showing that a failure in children to react to the von Pirquet may mean a temporary loss of the specific resistance to tuberculosis rather than a freedom from the disease. The children so failing to react, soon after being given one or two small doses of tuberculin subcutaneously, may show a vigorous von Pirquet. Measles and whooping-cough both result in a temporary loss of this specific resistance, which accounts for the clinical observation that active tuberculosis frequently follows these diseases. A child having survived either may be said to have had his "latency tested." In other words, the trend of diagnosis of tuberculosis to-day is to get away from some isolated, deductive method of showing its presence, and to induce, from a careful history, physical examination, etc., the therapeutic needs of the patient.

DR. V. C. VAUGHAN, JR., Detroit: I did not mean that the roentgenograms proved anything at all absolutely. I do not think that Dr. Hickey ever said that was a calcified tubercle; he said it looked as though it might have been a calcified tubercle.

I wish to bring up the point that there are two distinct types of reaction, the tuberculosis reaction and the ophthalmic reaction, which, according to the theory advanced, is due to the splitting up of the tuberculin in the eye by a ferment circulating in the fluid and liberating the poison at that point. Since there is no large amount of ferment at any given time, the reaction, whether low or high, reaches a moderate degree of severity and continues over a prolonged period of time.

If a person fails to react, and the instillation of tuberculin in that eye has developed ferment there, this can spread up to the conjunctiva, and tuberculin of less strength must be used because it is to be brought directly into contact with the zymoid and cause immediate liberation of all the poison in it. You must see the patient again in four hours, when a distinct reddening will always be found, and wash out the excess with boracic acid. I have never seen any bad results. I agree with Dr. Cabot that it would be far better if we had some other reaction, and I am at present working with the sensitization of some of the other mucous membranes and hope to attain the same results there. The point which my paper brings out is the great importance of diagnosing between active tuberculosis and tuberculosis which is inactive. A great many patients are sent to sanatoriums simply on the tuberculin tests and who do not need to be there any more than you or I do. I did not say that it was possible to diagnose tuberculosis by means of tuberculin; I said that the tuberculin reaction was strong confirmatory evidence of the presence of tuberculosis.

LIMITATIONS OF LANGE'S SILK LIGAMENTS IN PARALYTIC SURGERY AND SUBSTITUTES THEREFOR*

EDWARD A. RICH, M.D.
TACOMA, WASH.

One must acknowledge that the mechanics of the silk ligament as advocated by Lange is a distinct contribution to paralytic surgery. So practical and rational seemed the introduction of the artificial ligament, so encouraging the production of new periosteal tissue engrafted along the silk, that orthopedists generally have utilized the procedure with varying permanent success.

Fig. 1.—Foot showing results of capsule-tucking after failure of silk ligament in ankle suffering a complete paralysis of the leg in an adult. Joint has 20 degrees mobility above this position.

This brief paper simply reviews my personal experiences with the silk ligament.

Since the introduction of Lange's silk ligament, I have utilized it in forty-eight selected cases, modifying my technic from time to time as improvements have been suggested. I have used it most frequently in the region of the ankle, but my range includes its use in two pathologic defects of the shoulder (after resection of humeral head, and redislocating shoulder-joint); twice to compensate paralyzed deltoids; once in a lax temporomaxillary joint; two times over the knee and through the patella, and once in the elbow. About the ankle the silk ligament has been employed generally to atone for equinus or calcaneus and a few times for lateral deviations.

In all but two cases there has been no primary infection. In a number of cases, when the silk was passed through bone tunnels, there resulted a transient tendency to serous drainage for two or three weeks. The two cases infected continued to suppurate until the removal of the silk. Two and a half years have elapsed since the first cases were supplied with the ligaments. This report includes no case of less than 5 months' duration.

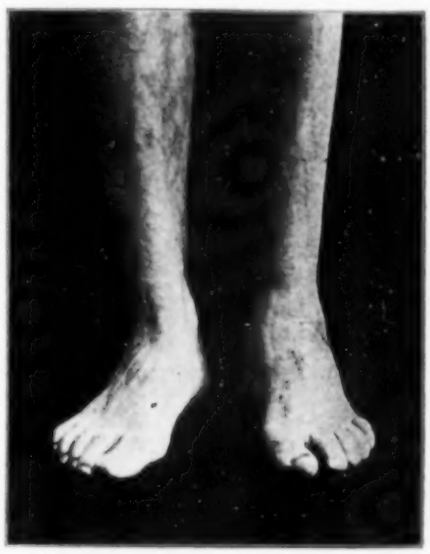

Fig. 2.—Case of equinovarus, result of capsule-tucking and partial astragalectomy. Supplemental tendon work provides 20 degrees motion.

I believe that the rôle of Lange's ligament is played most admirably in the shoulder and the elbow of the upper extremity. In the lower extremity it is unreliable and unpractical. The final results in so-called "successful" knee and ankle cases two years after introduction are disappointing, to say the least, and are less permanent than several other measures at our disposal. In other words, the silk ligament is a feasible and useful measure in joints not subjected to the greatest strain or to external irritation. I have satisfied myself that its service is most limited in feet that must be encased in shoes.

Without considering the periosteal extensions formed around the silk, the silk is a foreign body and will ever be such. It has to be inserted either within a tendon or through a tendon sheath. Again the silk has to be tied, necessitating a knot.

The presence of the silk and its knot does not apparently cause much irritation of itself in and about the joint structures, provided there be no extraneous irritation. But encase such a joint in shoes, fix it with lacings, walk and run and jump on it, and sooner or later there will be irritation and the necessity of removal.

A year ago I exhibited at Spokane a silk ligature that had done service in an Alaskan hunter without irritation for fifteen months, when suddenly a new pair of boots started an irritation that made its removal imperative. As time elapsed, more and more often have I had to repeat this experience of eventually removing silk that has caused irritation in "successful" cases. Up to date I have had to remove the silk in eighteen out of forty ankle cases.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Six months ago I ceased to employ the silk below the knee. In its stead, I have fallen back on a combination of measures that fulfil Lange's aims without drawbacks.

Unfortunately, success in arthrodesis is only a relative matter in children; in its incompleteness, it is sometimes employed.

CAPSULE-TUCKING

More often in cases formerly treated with silk ligament, I use a form of capsule-tucking, to limit the mobility of paralyzed joints. To illustrate, in equinus: I make elliptic skin incisions transverse to the limb over the ankle-joint, retract the tendons and split the ankle-joint capsule midway between its attachments to tibia and astragalus with a full horizontal incision; the two lips of capsule are seized with hemostats and are overlapped sufficiently to correct the toe-drop and sutured with mattress-sutures of very heavy chromicized catgut. Heavy scar tissue forms about the site of these sutures, binding the bones still more firmly together.

In conjunction with joint capsule-tucking, the older measures are used; the dead or weak tendons are shortened; the superficial fascia is overlapped and tucked with

Fig. 3.—Results of joint capsule-tucking in heavy adult, after failure with the silk ligament. Tendon work also used. Considerable motion above right angle. Extreme foot-flexion is shown.

mattress-sutures, and the skin brought together, minus the skin-flap removed between the original incision. Almost always some form of tendon work comes in for its due share of consideration (Figs. 1, 2 and 3).

It is only fair to state that on the Pacific coast, life even in childhood is most strenuous. The climate conduces to an active outdoor life the year round. The children in the lower grammar grades are led into football, baseball and track athletics against rival school teams. Boy scouts and fond fathers trail the youngsters over mountains and through difficult forests. Again, the principal industries in our two northwestern states have to do with forestry and fishing—two lines of work that try to the utmost the physical endurance, brawn and limb. Consequently, our patients on discharge fall back to their accustomed activities. A procedure surviving the rack and tear of our section stands the endurance test.

It is my belief that the introduction of a foreign body, such as a strand of silk, into the foot, is not a practical or justifiable measure. The principle underlying Lange's method can more successfully be carried out in treating the leg palsies by modifying the natural structures entering into the joints, gaining fixation thereby, than by the introduction of foreign bodies.

1103 Fidelity Building.

ABSTRACT OF DISCUSSION

DR. EDWIN W. RYERSON, Chicago: Dr. Rich has emphasized a point that is extremely important; that is, that it is inadvisable to leave the knots where the shoes will press against them. You should simply make the loop on the bone, and make the knot away up on the ankle, at the side on which the hole is bored through the tibia. In one or two tendon transplantations in which I left knots in the foot, I had trouble. In a good many other cases, in which I had made knots of large-sized silk, it is only fair to state that they gave no trouble. A piece of silk such as I used, when it becomes covered with fibrous tissue, as I have seen it do in many cases, cannot be any longer, I believe, legitimately considered a foreign body. It is filled with the normal constituents of the human frame and fails to act as a foreign body in so large a proportion of the cases in which I operate that it would not be ordinarily termed a foreign body. I have done a large number of operations of this sort and have seen only three cases in which the silk ligament had to be taken out.

DR. R. O. MEISENBACH, Buffalo, N. Y.: I should like to ask Dr. Rich whether or not he uses paraffined silk.

DR. EDWARD A. RICH, Tacoma, Wash.: The question of the use of the silk ligament is not, as yet, a settled one. Whether we shall ultimately be inserting heavy silk strands into the neighborhood of joints is in my opinion doubtful. The point I wish to make emphasizes the fact that in the West, under Western conditions—which may be different from conditions elsewhere—the silk does not give satisfaction in the lower extremity.

In the earlier work with silk I used the plain, twisted silk, twice sterilized; however, in the last two-thirds of the cases I have turned to the paraffined silk and believe that it is preferable.

DR. MEISENBACH: Why did you change?

DR. RICH: We changed from the plain to the paraffined silk because Lange advised it, and because the plain silk had been causing too much seepage from the periosteal and bony attachments. Most of our failures have been attributable to one of two causes; first from the wick-like drainage of the plain silk, and second from external irritation.

CLINICAL AND LABORATORY SALVARSAN RELAPSES AND THEIR REMEDY

A SEROLOGIC STUDY OF SIX HUNDRED FIFTY-ONE CASES COVERING NINE HUNDRED FIFTY-TWO INTRAVENOUS ADMINISTRATIONS AND THREE THOUSAND THREE HUNDRED FOUR WASSERMANN EXAMINATIONS *

M. L. HEIDINGSFELD, PH.B., M.D.

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Sufficient time has already elapsed and the number of cases has been amply large to permit a retrospective analysis of the salvarsan treatment of syphilis and an estimation of its true and relative worth. Despite the fact that it fails, from both a clinical and laboratory point of view, to effect a permanent cure here and there, it is safe to assume at present that it has clearly demonstrated itself to be the sovereign remedy for the succes-

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

ful treatment of the various stages of syphilis and has definitely acquired an indispensable place in this important field of therapy. It is no longer necessary to determine whether it is a useful or a useless remedy, whether its results are efficacious or futile, its effects good or bad, or whether it should or should not be administered in all well-defined cases of active syphilis. There is scarcely a person of even moderate experience who will not concede, without bias or prejudice, its great positive worth in these and many other directions. The salvarsan problem of to-day is no longer a question of whether it should or should not be administered, but (1) what its untoward results are and how they can be successfully obviated, (2) to what degree its curative properties can and should be carried, (3) to what extent its action must be supplemented by other agents and (4) what plan of treatment subserves its purpose best.

Salvarsan results can be conveniently grouped into two large classes, namely, cases of syphilis in which clinical symptoms have remained in abeyance for a year or more, with persistent negative Wassermanns, and those which have shown relapses of a clinical or laboratory type or have failed to proceed to an apparent recovery from either a clinical or laboratory point of view. The conversion of the latter to the former is the question of chief absorbing interest at present, and the successful therapeusis of syphilis will not be satisfactorily elucidated until this goal is reached.

METHOD OF ADMINISTRATION AND TREATMENT

The attempt to establish fixed rules for the successful treatment of syphilis from a salvarsan or any other point of view has ever been and probably will ever remain an exceedingly difficult undertaking. There is so much variation in technical ideas and disparity in method of treatment, control and individual results that it will require a long period of careful observation, investigation and study before a fair degree of unanimity of opinion can be successfully attained. There are, however, a few fundamental principles in reference to salvarsan which have received general, but not their fully deserved universal, recognition. The generally practiced intravenous administration of salvarsan is almost universally conceded to be the most efficient method of neosalvarsan treatment. It can be performed, under proper technical precautions, without untoward incident and danger, in ambulatory practice and in threatening complications of somewhat unfavorable character. It is of utmost importance that every step of the operation be attended with painstaking surgical asepsis. All vessels and paraphernalia should be surgically clean and freshly sterilized. It is essential that the water used for cleansing and dissolving purposes should be freshly distilled and surgically clean. Distilled water from druggists and mineral-supply houses must be questionable and unsafe if allowed to stand longer than twenty-four hours. Ehrlich and others have clearly established that many of the untoward results from salvarsan and neosalvarsan in the past have been the result of improper technic and, most notably, the use of impure water.

DOSAGE

Opinion remains divided, with no hope of an early adjustment, regarding salvarsan dosage in syphilis. For the most part, one of two methods is employed, large and oft-repeated doses during the early stages of treatment, in order to obtain theoretically a *dosis sterilisans magna*, or relatively smaller or less frequently repeated dosage. The former attains more generally in Europe, the latter possibly more in this country. It is needless to state that the early ideals of Ehrlich regarding a *dosis sterilisans magna* have not been attained in the vast majority of cases. It is possibly true that a single administration often effects an apparent cure, most notably in early initial lesions, before general infection has become established or of long-standing character. During my earliest experience with salvarsan I was inclined toward large and oft-repeated dosage. Not noting any material improvement or favorable change from a clinical and laboratory point of view in the refractory cases, even when salvarsan was administered in inordinate oft-repeated dosage, I promptly pursued a more conservative policy in regard to salvarsan administration in all cases. Partly from observations personally gleaned abroad and partly at the personal solicitation of Ehrlich, I underwent a change of sentiment for the time being and pushed the treatment beyond the clinical and Wassermann requirements in order to do too much rather than too little and to play the game on the safe side. My results conformed to the impressions obtained from previous experience, namely, that clinical and laboratory relapses were not thereby more favorably circumvented and that persistently positive Wassermanns could not be materially changed by such a procedure. If one or two salvarsan administrations failed to effect the desired result, a dozen closely repeated would not change the situation, even if they were otherwise well tolerated. I found it necessary in this class of cases to resort to adjuvants of a different character, and these form the basis for the presentation of this paper. Cases of laboratory or clinical relapse which were once favorably influenced by salvarsan treatment were usually promptly benefited when treatment was again repeated. Aside from this particular class, however, frequently repeated salvarsan possessed, in and of itself, little significance. Salvarsan, however, repeated after months of intermission, has often effected the desired result.

THE WASSERMANN REACTION

I wish merely to reiterate what has been expressed on former occasions relative to the importance and significance of a careful Wassermann complement-fixation control over all cases of syphilis. To treat a case of syphilis without this aid is virtually attempting to sail a vessel without the directing aid of compass and rudder—mere guesswork. Without its aid I should lack assurance whether my case was progressing favorably or unfavorably, as to whether or not some other therapeutic agent should be called into play, whether the prognosis augured favorably or unfavorably, whether early marriage should be encouraged or discouraged. A careful and properly made complement-fixation test gives all this wealth of information, without which the treatment of the case must remain more or less empirical and tentative in character. I am firmly of the opinion that no case of syphilis can be intelligently and satisfactorily treated without some such form of control. When personally supervised, the Wassermann possesses the greatest degree of scientific interest, and the progress of the case under intelligent interpretation can usually be measured with almost mathematical exactness. The Wassermann occupies, in my personal estimation, a place second to none, not even salvarsan, in the successful treatment of syphilis.

SEROLOGIC ANALYSIS

In 651 cases 3304 Wassermann examinations were made, and salvarsan was administered 952 times from Dec. 25, 1910, to June 1, 1913. The administrations

were made in ambulatory private practice, during the consultation hour, and not a single administration was attended by any incident of untoward character. The initial dosage was almost uniformly 0.6 gm. of salvarsan and 0.9 or 0.6 gm. of neosalvarsan; if neosalvarsan was repeated within from thirty to sixty days, 0.3 gm. was usually administered, unless persistent lesions or an unchanged and strongly positive Wassermann indicated otherwise. A Wassermann examination was made prior to the initial administration and was repeated every thirty days, until the blood became negative. When the fixation test remained negative two successive times, the examination was repeated in sixty days; if then negative, in ninety days, and then at intervals of six, nine and twelve months, according to the special indications of the case. It is needless to state that the complement-fixation examinations could not be systematically pursued in all the cases. Some of the patients absented themselves voluntarily; others, owing to foreign residence, enforced absence, delinquency, etc., involuntarily. The vast majority, however, reported regularly and the serologic study could be more carefully, consistently and intelligently carried on than is permissible in clinical and hospital practice. In only 209 cases of the 651 treated was there a record of but one Wassermann examination, and a fair percentage of these were cases that had received salvarsan for a period of less than ninety days. Deducting the 209 cases which were observed less than ninety days, or could not be intelligently followed for the reason of only one Wassermann examination, in 339 out of a total of 442 cases, or 77 per cent., the patients proceeded to recovery from a combined clinical and laboratory point of view, as a result of one or more administration of salvarsan. No other adjuvant was employed, although 276 cases of somewhat long standing received some form of antisyphilitic treatment prior to the administration of salvarsan. The majority of these, however, showed clinical relapses or positive Wassermanns at the time salvarsan was first administered.

Of the 103 cases, or 23 per cent., of salvarsan failures, nine received no additional attention. Of the remaining 94 cases, 13 proceeded to clinical and laboratory recovery with the aid of mercurials and 23 with the aid of atoxyl and sodium cacodylate; 21 have been observed comparatively too short a time to pass definite judgment. Twenty-two cases have apparently failed, from at least a laboratory point of view, with all methods of treatment. Summarized, in 50 per cent. of salvarsan failures the cases have proceeded to complete clinical and laboratory recovery when the treatment was supplemented by other measures.

In 371 cases, for the most part old and long-standing infections, some form of previous mercurial treatment has been received. Of these, 230 cases proceeded to recovery and 95 could not be intelligently followed. In other words, 83.5 per cent. proceeded to absolute recovery from a clinical and laboratory point of view. This is of striking interest, as it shows that more cases (83 per cent.) proceeded to salvarsan recovery when previously treated with mercury, than those cases (61 per cent.) which had received no previous mercurial treatment. This fact must possess great clinical significance. It apparently indicates that previous mercurial treatment favorably influences syphilis for salvarsan treatment. It may be, however, that the percentage of recovery is higher in the cases previously treated with mercury for two apparent reasons: (1) A large percentage of these cases were of rather long standing, with weak positive, negative or almost negative Wassermanns. Some possessed a dubious history, enveloped in greater obscurity by a too early administered mercurial treatment. The cases not previously treated with mercurials were, almost without exception, comparatively recent infections personally observed in which present-day methods of greater accuracy—the dark-field microscope and the Wassermann complement-fixation test—eliminated sources of possible error. Furthermore, the previously treated cases were of longer standing, and this, in and of itself, is a favorable feature, inasmuch as a large number of cases gradually proceed toward spontaneous recovery from both clinical and laboratory point of view, without the aid of other measures, in due course of time.

It is evident from this that salvarsan failed to effect a satisfactory result, from a clinical and a complement-fixation point of view, in 23 per cent. of the cases treated, and salvarsan aided by other measures in about 12 per cent. I do not wish to imply that these cases have been abject failures. On the contrary, I am firmly of the opinion that the administration of salvarsan has been attended by marked benefit and material improvement in all cases. Some of these "failures" were in cases which presented ravages of a severe and malignant type; cases which were rapidly proceeding to an unfavorable termination in spite of the free and intelligent use of mercurials, iodids and general old-line treatment. The failure has been largely, almost exclusively, of laboratory character and, from an objective clinical point of view, they would have readily passed muster as cures. These patients as a class showed no clinical manifestations, and their general state of health and well-being was, for the greater part, excellent. The persistent strong positive Wassermann, however, gave evidence that these patients were not cured, and that if further treatment were definitely intermitted, they would eventually present clinical manifestations of a relapsing type.

Hospital and dispensary practice bears abundant evidence that clinical as well as laboratory relapses occur in insufficiently treated cases. The treatment of syphilis cannot be considered eminently successful unless the patient is thoroughly insured against relapse. It must be thoroughly eradicated, if the patient is to remain pleased and satisfied with the attention, and the physician is to do full justice and credit to himself. In syphilis a half-cure is virtually no cure. False assurance can do harm, not only to the patient, but also to his environments. To effect a cure here and there requires no particular skill and attainment and should bring no credit to the physician who essays it. Nature doubtless effects that much unassisted. It is some credit to improve on Nature and to increase her percentage of favorable results. It is a matter of extreme discredit, however, not to recognize the uncured patients, and not to labor for their ultimate recovery, if such possibilities are within our province and are not accepted. The cases of persistent positive Wassermanns, in spite of prolonged intelligent attention, are doubtless the ones which present the greatest menace. These are usually the cases in which the disease is constantly making slow and insidious ravage without external evidence or manifestation. These are the cases which ultimately show the irreparable and distressing invasions on the cerebral, spinal and circulatory systems. It is therefore the 23 per cent. of salvarsan failures with which the profession must now be seriously engrossed, for it is unpardonable to allow one in every four patients with syphilis

to incur this unnecessary risk, if there are satisfactory and intelligent methods of circumventing it.

For the past year or more I have endeavored to seek some satisfactory method for the conversion of the 23 per cent. Wassermann positives to negatives, in cases which have successfully resisted three or more salvarsan administrations. In the beginning I employed massive intravenous administrations of mercury oxycyanid and mercury bichlorid, from 100 to 200 gm. of a 1:1,000 solution. The results, from the point of view of complement-fixation, were encouraging, but gastro-intestinal disturbances and localized obliterating phlebitis discouraged my effort in this particular direction. Since then I have employed a 10 per cent. solution of sodium cacodylate and atoxyl, with more encouraging results. Sodium cacodylate has proved itself to be the more efficacious and reliable of the two. Twenty-two cases of a total of fifty which could be intelligently followed proceeded from Wassermann positive to Wassermann negative with deep muscular injections of sodium cacodylate. Many of the cases were not favorably influenced from a Wassermann point of view, and a few retrograded from weak positive to strong positive. It is difficult to conjecture whether this retrogressive change was incident to the cacodylate or to the natural causes of syphilis. The injections were made twice weekly for from thirty to sixty days. If the Wassermann was negative in thirty days, it was administered once weekly. The cacodylate injections were never continued longer than sixty days and not repeated under intervals of two or three months. They were well tolerated in all cases. Salvarsan was repeated every three or four months in all persistently positive cases; a number of persistently positive cases which successfully resisted salvarsan, cacodylate and other measures for several years have eventually become weak positive or Wassermann negative. I am encouraged to believe that all cases, with intelligent, persistent attention, give fair promise of eventually becoming Wassermann negative. Only five cases in my experience have relapsed to a Wassermann positive after being negative for one full year. It is probably needless to add that general tonic treatment was not omitted and that dietary and other regimen was properly imposed. Alcohol was absolutely interdicted in all cases until the Wassermann remained absolutely negative for a period of ninety days; the cases in which this was not observed and those in which the patients were previously addicted to the inordinate use of alcohol fared worse as a class. Relatively few patients showed appreciable material improvement when the treatment was supplemented by inunctions or deep muscular mercurial injections.

This paper is based entirely on my own impressions, gleaned from the careful study of cases under my personal observation and control in private practice. It has been my endeavor to exclude carefully any impression from the experience of others to confrères, which may have reached me directly or indirectly through the literature. I have been actuated to do this chiefly for the reason that the literature on the subject is much at variance with itself. It is an easy matter to find confirmation or rejection, as the case may be, for any statement for or against the use of salvarsan. For these evident reasons the literature has not been consulted and all references have been carefully excluded.

I wish to reiterate what I have already stated on former occasions, namely, that the Wassermann is the oracle and mentor of syphilis diagnosis and therapeusis. The diagnosis and treatment of syphilis without Wassermann control and other specialized aid must be unscientific and, in a large degree, unsatisfactory in character. Salvarsan, though not an unfailing remedy, is by far the most effective present-day agent which we possess for the treatment of syphilis. It effects an apparent clinical and laboratory cure in about 77 per cent. of the cases treated. A large proportion of the remaining 23 per cent. of cases, with the aid of sodium cacodylate and other measures give every promise of proceeding to a negative Wassermann and absolute clinical cure in due course of time.

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AN EXPERIMENTAL STUDY OF THE ANTISEPTIC VALUE IN THE URINE OF THE INTERNAL USE OF HEXAMETHYLENAMIN *

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Since 1895, when Nicolaier[1] first demonstrated formaldehyd in the urine as a decomposition product of hexamethylenamin, the use of hexamethylenamin as a urinary antiseptic has been almost universal. Churchman[2] indicated in 1906 its antiseptic value with the conclusion that its effects in the urine are expressed in an inhibition of bacterial development rather than in a destruction of bacterial life. Nothing more definite appeared until last year, when Burnam[3] upset our ideas somewhat by stating that on the customary doses of from 5 to 10 grains three times a day not more than two patients out of ten would show any decomposition of the drug into formaldehyd at all, while only 60 per cent. would show it on a dosage of from 20 to 30 grains every four hours. These findings were quickly confirmed by L'Esperance[4] and Jenness,[5] the former finding 52 per cent. formaldehyd-containing urines in 250 cases, and the latter only 47.2 per cent. in 200 cases. Smith[6] published observations on fifty cases, in only one of which did he fail to find formaldehyd.

No attempt was made by any of these investigators to determine the quantity of formaldehyd put out in a series of cases, nor have the factors influencing the conversion of the drug into formaldehyd been definitely established, although it has been known for some time that hexamethylenamin itself has no antiseptic power, and that it is only through its being converted into formaldehyd that any antiseptic benefit can be derived from its use.

The present study attempts to indicate the quantity of formaldehyd, and, therefore, its true antiseptic value.

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* The part of this paper relating to chemical tests and the method of quantitative estimation was read before the Association of Genito-Urinary Surgeons, May 7, 1913, at Washington, D. C., and will be published in full together with the case reports and findings of this study in the Transactions of that Society.

1. Nicolaier: Deutsch. med. Wchnschr., 1895, xxi, 541; Deutsch. Arch. f. klin. Med., 1904, lxxxi, 181.

2. Churchman, J. W.: Johns Hopkins Hosp. Rep., 1906, xiii, 189.

3. Burnam, Curtis F.: An Experimental Investigation of the Value of Hexamethylenamin and Allied Compounds, Arch. Int. Med., October, 1912, p. 324; abstr., THE JOURNAL A. M. A., Nov. 9, 1912, p. 1743.

4. L'Esperance: Boston Med. and Surg. Jour., Oct. 24, 1912.

5. Jenness, B. F.: Burnam's Test for Formaldehyd in the Urine, A Study of Two Hundred Cases, THE JOURNAL A. M. A., March 1, 1913, p. 662.

6. Smith, G. G.: Boston Med. and Surg. Jour., May 15, 1913.

in the urine of patients receiving 15 grains of hexamethylenamin three times a day after meals, and to determine the important factors influencing this quantitative output.

The results for the convenience of better consideration may be divided into the following parts:

1. The germicidal and antiseptic values of formaldehyd.
2. Chemical tests for formaldehyd in the urine, with the report of a simple method of quantitative estimation by a modification of the Rimini test.
3. The antiseptic value to the urinary system of hexamethylenamin by mouth.
4. A consideration of the important factors influencing this value.
5. Comparative values of some of the allied hexamethylenamin compounds.

THE GERMICIDAL AND ANTISEPTIC VALUES OF FORMALDEHYD

The bacteriologic study of formaldehyd divides itself naturally into that showing germicidal power, and into that showing antiseptic power. By germicidal is now generally understood a complete death of the organism; by antiseptic, an inhibition of growth for a variable time while exposed to the action of the drug, but with the ability to resume activity on being removed to a favorable environment.

A review of the work of other investigators, of which there have been a great many, and my own experiments, indicate that formaldehyd is a weak and a relatively slow germicide, but that even in high dilutions it exerts a powerful inhibitory influence to bacterial development. This power of inhibition varies with the different organisms studied. The staphylococci, and the typhoid and colon bacilli are the most resistant, the *Bacillus pyocyaneus* and streptococci are next, while the proteus group, the diphtheria and pseudodiphtheria bacilli, *B. subtilis* and *B. dysenteriae* are less resistant to its action. A dilution of formaldehyd of about 1:16,000 or stronger is totally inhibitory to the growth of *B. typhosus* for twenty-four hours, and a dilution of 1:6,000 is completely germicidal at the end of that time. A dilution of 1:30,000 definitely restrains the growth of the organism, but a dilution of 1:40,000 has no apparent effect, although, if the results are shown by means of plating and a systematic bacterial count, there will be a slight diminution in the count as compared to a control in broth.

In order that formaldehyd in the urine may be of clinical value, therefore, the urine should contain a strength of at least 1:30,000. Twice this strength is much more efficacious, as it would then be completely inhibitory to a majority of the organisms, and the best effect will be procured with a germicidal strength, or a solution of about 1:6,000.

TESTS FOR FORMALDEHYD AND METHOD OF QUANTITATIVE ESTIMATION

The marked instability of the two drugs, particularly with reference to acids and alkalies, should be given due consideration in applying tests for their detection, and the difficulty in a study of this kind, when an estimation of formaldehyd alone is desired, is greatly increased by the associated presence of the closely allied and unstable product, hexamethylenamin. It is not possible to use strong acids because the result is vitiated by a conversion of this substance. In addition the ease with which formaldehyd will combine with some inorganic and organic substances is to be remembered, and in the urine there are no doubt changes taking place that we know nothing about. Formaldehyd forms a soluble salt with uric acid, which suggested the use of hexamethylenamin in cases of urinary calculi, and, as the urine contains many similar substances, it is possible that in some cases very little formaldehyd is present because of the formation of certain by-products which may possibly give our color tests, and which may or may not be antiseptic.

Of the qualitative tests (Hehner's,[7] Shiff's,[8] Neuberg's,[9] Jorrison's,[10] Lebbin's,[11] the Amidol,[12] and Rimini's,[13] only the last three were found to be applicable to urine examinations, in that they were not interfered with by the associated presence of hexamethylenamin. Hehner's test was found of considerable negative value in showing the absence of both hexamethylenamin and formaldehyd. All of the tests are of value only qualitatively, and give no indication of the quantity of formaldehyd present, the main object in view.

An experimental study of some of the best considered quantitative methods of estimating formaldehyd was most discouraging, for reasons such as the instability and volatility of formaldehyd, the very small amount present and the associated presence of hexamethylenamin. No known method was found applicable for quantitative determination in the urine.

Quantitative Method of Estimation: Rimini[13] in 1898 published a phenylhydrazin-nitroprussid test as particularly applicable to foodstuffs, and it has since been found to be very reliable, provided certain precautions are observed. Anderson[14] reported it as one of the most reliable for formaldehyd, and in 1912 Burnam slightly modified the percentage dilution of the test drugs and applied it to urine examinations.

In the early experimental work with this test it was seen that there existed a definite relationship between the dilution of formaldehyd and that of one of the reagents, phenylhydrazin hydrochlorid; the more formaldehyd present, the less phenylhydrazin needed to obtain the reaction, and vice versa. This relationship gives a fairly uniform limit of reaction for the several formaldehyd dilutions and is the basis of the quantitative estimations to follow. The estimation is made by finding the weakest dilution of the test drugs that will give the characteristic blue-green-yellow reaction, and it was found convenient to represent the result in the form of a fraction, the numerator representing the dilution of phenylhydrazin, and the denominator that of the nitroprussid. Thus a 100/20 test indicates that this is the limit of reaction for that particular specimen, and by comparing this with the results on known dilutions of formaldehyd it will be seen to correspond to the limit of reaction of a known 1:40,000 solution. Therefore the specimen with this test has formaldehyd in dilution of about 1:40,000. Following this out for the other tests we obtain: 10/20 reaction equals a 1:60,000; 20/20, a 1:50,000; 100/20, a 1:40,000; 600/20, a 1:30,000; 800/20, a 1:20,000; 1,000/20, a 1:10,000, and 1,000/100, about a 1:7,000 dilution of formaldehyd.

7. Hehner: Abstr., Lond. Chem. Soc., 1896, A II, 583.
8. Shiff: In Allen: Commercial Organic Chemistry, 1908.
9. Neuberg: Berl. d. d. chem. Gesell., xxxii, 1962.
10. Jorrison: Chem.-Ztg., 1897, p. 290.
11. Lebbin: Ztschr. f. anal. Chem., 1897, xxxvi, 18.
12. Allen: Commercial Organic Chemistry, 1908.
13. Rimini: Chem. Zentralbl., 1898, I, 1152; abstr., Jour. Soc. Chem. Indust., 1898, p. 697.
14. Anderson: Bull. 39 Hyg. Lab., U. S. P. H. and M.-H. S.

THE ANTISEPTIC VALUE TO THE URINARY SYSTEM OF HEXAMETHYLENAMIN BY MOUTH

The patients, with five exceptions, were not normal cases. Thirty-two were old men with enlarged prostates, of which six were malignant. Fifteen patients had surgical disease of the kidney, six, disease of the bladder, twenty-four were gynecologic cases, three, medical, seventeen were in the department of general surgery and fourteen had some minor genito-urinary disease.

Significance of Disease of the Kidney: The kidneys of thirty-three of the 116 patients were definitely diseased, as indicated by the phenolsulphonephthalein test of Rowntree and Geraghty.[15] A number of these gave extremely poor phenolsulphonephthalein tests, three showing only a trace in one hour with a markedly delayed appearance time, in one not appearing for fifty-five minutes, in another for sixty-two. The findings in the forty-four cases in which phenolsulphonephthalein tests were made do not indicate that disease of the kidney exerts any influence whatsoever on the formaldehyd content in the urine.

Antiseptic Value of Formaldehyd at the Level of the Kidney: It has been generally believed that hexamethylenamin is converted into formaldehyd at the level of the kidneys. To be of value formaldehyd must be in the urine in the kidney in amounts of 1:30,000, or greater. To determine in what amounts formaldehyd is present the ureters of patients on hexamethylenamin were catheterized and the specimens from each kidney were examined immediately, and these findings compared to those on the urine voided just before the cystoscopy. Three of the bladder urines failed to show formaldehyd, whereas of the twenty-three catheterized urines, only five showed formaldehyd, and these five had only a 1 to 60,000 formaldehyd content. The eighteen negative urines all gave a positive Hehner's test, showing that hexamethylenamin was being excreted. That more formaldehyd is not formed is explained by the lack of time necessary for formaldehyd conversion in an acid medium. The hexamethylenamin as it is excreted from an alkaline blood is not allowed to remain at the level of the kidney long enough to give good conversion, and even with a high acidity and a high concentration the amount of formaldehyd at this level is seldom great enough to furnish antisepsis.

Antiseptic Value of Formaldehyd in the Bladder: Only four of the 116 cases failed to show formaldehyd. In each of these cases only one specimen was examined. The remaining 112 cases were positive for formaldehyd at some one examination. They may be conveniently grouped according to the highest test given at any time, and the examinations, which give a more just indication of values, may also be grouped according to the test reactions.

Only eight cases, or about 7 per cent., revealed formaldehyd in germicidal strength, and five of these patients had been fed on acid sodium phosphate, so that in only about 2 per cent. of the usual cases did the urine give the 1:7,000 test at any one time; 25 per cent. had formaldehyd in amounts to give complete bacterial inhibition, and 55 per cent. of the cases gave at some one examination a 1:30,000 test or better; 44 per cent. of the cases, although formaldehyd was present, at no time had this formaldehyd in sufficient amount to furnish antiseptic benefit.

Of the 318 examinations 36 per cent. were definitely antiseptic, and of these only 17 per cent. showed formaldehyd in strength to give complete bacteriostasis, and only 5 per cent. were germicidal; 64 per cent. had less than 1:30,000, and possessed no antiseptic value. (These results, owing to the fact that it was found impossible to examine all of the specimens immediately after being obtained, are no doubt high, but there is doubtless a slight error due to the instability of the test drugs, which would tend to correct the error due to an increase of formaldehyd on standing.)

FACTORS INFLUENCING FORMALDEHYD CONTENT

Several factors influence the amount of formaldehyd present in the urine of patients receiving hexamethylenamin by mouth. They are of two kinds, those that influence hexamethylenamin excretion, and those that influence hexamethylenamin conversion. All factors are more or less interdependent.

Influence of Urinary Acidity: In order definitely to determine the significance of the acidity of the urine to the amount of formaldehyd present in it, 10 c.c. of each specimen were titrated against tenth-normal sodium hydroxid, using phenolphthalein as indicator. The acidity varied from 0.1 to 7.9 c.c., the average of the 231 examinations being 3.1 c.c. Twenty-nine of the urines had an acidity of less than 1 c.c., and of these, thirteen were negative for formaldehyd and twelve others barely gave a test. There were two negative urines with an acidity between 1 and 2 c.c., whereas of the urines with an acidity above 2 c.c. all showed formaldehyd, and, with the exception of six cases, all showed formaldehyd in 1:40,000 dilution or better. There were 109 urines that gave 1:30,000 or better, and of these, 100 had an acidity of 2 c.c. or better, only nine an acidity between 1 and 2 c.c., and none with an acidity below 1 c.c. On the other hand, there were ninety-five urines that gave a test below 1:30,000 formaldehyd, and of these ninety-five, fifty-seven, or almost two-thirds, had an acidity below 2 c.c. This would indicate that a formaldehyd content of antiseptic value cannot be expected with a urinary acidity below 2 c.c. of tenth-normal sodium hydroxid.

The importance of urinary acidity to formaldehyd content in the urine is further demonstrated by the following observations:

1. The urine of a patient on hexamethylenamin, if acid, will after standing give a higher test for formaldehyd than when fresh. For example, 400 c.c. of urine voided at 11:30 was negative for formaldehyd, but at 3 p. m. the same urine gave a 1:30,000 test. On the other hand, a faintly-acid urine after standing five hours showed no increase in formaldehyd content, but when this urine was made acid by adding acid sodium phosphate, a 1:20,000 test was given in two hours.

This time element is an important factor to be considered in making tests. Every urine should be examined immediately after being voided in order to judge fairly its antiseptic properties while in the bladder. And this factor, together with that of urinary acidity, will explain the fact that a patient on forced water will show a low formaldehyd concentration as compared to a patient on the same dose but without polyuria. In the former case there is neither sufficient time nor acidity for the conversion of the hexamethylenamin in the bladder. When the acidity is high, however, a half hour seems time enough for good formaldehyd conversion, provided there is good concentration. In order to obtain

15. Rowntree, L. G., and Geraghty, J. T.: Phthalein Test, Arch. Int. Med., March, 1912, 284; abstr., THE JOURNAL A. M. A., April 6, 1912, p. 1038.

the best results in cases of cystitis from hexamethylenamin therapy, therefore, the fluids should be partially restricted and the bladder emptied as infrequently as possible.

2. If hexamethylenamin is added to an acid urine it will be quickly converted into formaldehyd. On the other hand, hexamethylenamin added to a neutral or faintly acid urine shows none of this conversion.

3. The addition of acid sodium phosphate to the urine of a patient on hexamethylenamin negative for formaldehyd will convert the hexamethylenamin present. The addition of almost any acid will convert the hexamethylenamin.

4. Increasing or decreasing the acidity of the urine of a patient through his diet causes a corresponding change in the formaldehyd content of the urine.

Feeding milk of lime causes a diminution in urinary acidity, and in those cases in which it was used a complete disappearance of formaldehyd from the urine occurred.

Feeding acid sodium phosphate, boric acid, benzoic acid or salicylic acid will increase urinary acidity in cases in which it is low, and in these cases very definitely increases the amount of formaldehyd in the urine. The effect of any one of these acid-producing drugs will wear off after a time owing to body tolerance. When this occurs for any one it is possible to again raise acidity by substituting one of the other drugs in its place, and by thus alternating the use of the drugs acidity may be maintained for some time, in some cases, but not satisfactorily in all.

It is not well to give these drugs with the hexamethylenamin, since, as already shown, they tend to convert this, and might do so to such an extent in the stomach as to produce gastric irritation, as well as a loss for subsequent conversion in the urine.

Influence of Gastric Acidity: Hexamethylenamin is converted in the acid contents of the stomach. The amount of this conversion depends on the degree of gastric acidity, the amount of the drug exposed to its action, and the duration of this exposure. In one case in which 30 c.c. of contents were removed half an hour after giving hexamethylenamin, free formaldehyd was present in the proportion of 1:20,000, and after standing three hours the same contents showed a formaldehyd strength of 1:7,000.

In order to determine the significance of this formaldehyd thus formed in the stomach, formaldehyd solutions (6 ounces of a 1:3,000 or a 1:5,000 every three hours) were given by mouth to patients not on hexamethylenamin, and the urines carefully examined for both formaldehyd and for hexamethylenamin. These urines were all uniformly negative, even with the most delicate tests, showing that the formaldehyd was not being excreted either as formaldehyd or as hexamethylenamin. The blood of these patients was also examined with Hehner's, the Amidol and Rimini's tests, in each case with complete negative findings, indicating that formaldehyd was not present in the circulation nor had it been converted into hexamethylenamin in the alkaline medium either of the intestines or of the blood.

Chemists have been able to synthesize the simpler sugars from formaldehyd. Emil Fischer[16] and his pupils have formed most of the hexoses, and more recently Grube[17] showed through perfusion experiments on tortoise livers that formaldehyd acted as a glycogen former. This is the possible fate of these small amounts of formaldehyd when given by mouth.

These observations indicate that gastric acidity is a factor of influence in hexamethylenamin therapy, since the formaldehyd in the stomach is not excreted in the urine as formaldehyd or as hexamethylenamin. In cases of hyperacidity or poor gastric motility there is sufficient conversion in the stomach to considerably lower the formaldehyd content in the urine.

Feeding Salol-Coated Pills: In order to avoid the effects of gastric acidity hexamethylenamin may be given in salol-coated pills. Given in this way it will be largely excreted in the urine. The results of its use, however, did not show any great advantage through an increase in formaldehyd content over the usual manner of administration, and it takes from one to two hours longer for the drug to be detected in the urine. When given in this way in cases of hyperacidity there was a slight increase in formaldehyd content, but the difference was not great enough to recommend the method for routine use. Nevertheless, in cases of gastric irritability this mode of administration is applicable.

Influence of the Size of the Dose: In a few cases the routine of 15 grains three times a day was varied for purposes of comparison. The amount of hexamethylenamin excreted, the other factors being good, appears to be proportional to the amount ingested, but a large dose is not effective unless accompanied with a urinary acidity greater than 2 c.c. of tenth-normal sodium hydroxid. The value of smaller doses than 15 grains is very questionable. The drug can be given for months in fairly large doses with no untoward effects.

Influence of Curve of Excretion: Formaldehyd will begin to appear in an acid urine in sufficient quantities to be detected after the ingestion of an average dose (15 grains) in from twenty to thirty minutes, and will have disappeared in from eight to sixteen hours. The height of excretion is reached in from two to four hours and is maintained for four hours or longer. An eight-hour interval of administration will give good results in routine use, although a higher concentration is obtained with a more frequent medication.

SUMMARY OF THE FACTORS INFLUENCING THE FORMALDEHYD CONTENT IN THE URINE

These factors may be divided into two groups:

I. Those relating to hexamethylenamin excretion:

1. The larger the dose the higher will be the percentage concentration of the drug on excretion. Large doses may be given with no bad effects in the majority of cases, and small doses are useless in most cases.

2. The interval of administration should not be longer than eight hours, and shorter intervals will give a more continued maximum effect.

3. The character of the changes that occur in an acid stomach content forms an appreciable factor in certain cases of hyperacidity or of stasis. The amount of hexamethylenamin broken up in the stomach is that much loss for subsequent conversion in the urine.

II. Those relating to the conversion of hexamethylenamin:

1. The degree of urinary acidity is the most important factor, and should be greater than 2 c.c. of tenth-normal sodium hydroxid. It may be increased or maintained in some cases by feeding certain acid-producing drugs, of which acid sodium phosphate is the best. For practical purposes it is necessary only to know the acidity

16. Fischer: In Hammerston-Mandel: Physiologic Chemistry, 1911, p. 205.
17. Grube, K.: Arch. f. d. ges. Physiol. (Pflüger's), abstr., Hammerston-Mandel: Physiologic Chemistry, 1911.

of the urine in order to know the antiseptic value of formaldehyd in that case, provided the patient is getting large doses at regular intervals and has no gastric irritability or polyuria.

2. The duration of exposure to the influence of this acidity is of importance, so much so that on account of it the drug in medium-sized doses is of no use in kidney infections. It becomes of particular importance in cases of cystitis or of polyuria in which the patients void so frequently that time is not allowed for conversion of the hexamethylenamin in the bladder in amounts to be of antiseptic value. In estimating the antiseptic value of a urine it should always be fresh and not allowed to stand before testing.

3. The dilution of the drug on excretion largely influences the amount of it that is subsequently converted, as the higher its concentration the more readily will it be broken down. A polyuria, through the effect of dilution, will largely offset the advantage of large doses.

A COMPARATIVE STUDY OF THE ANTISEPTIC VALUES OF SOME OF THE ALLIED HEXAMETHYLENAMIN COMPOUND

Hexamethylenamin is dispensed under many proprietary names, such as urotropin, formin, aminoform, cystogen, etc. Certain of these are less irritant, but none of them liberate more formaldehyd than the pure drug, and in most cases not so much. In addition to these there are a number of other proprietary preparations for which an action superior to hexamethylenamin is claimed through the added benefit of the salt to which it is combined, such as helmitol,[18] hexal,[19] saliformin,[20] Myrmalyd,[21] Borovertin, Hetralin, etc. Of these only the first four were available for study, and these did not give as good a formaldehyd content as does hexamethylenamin.

CONCLUSIONS

1. The conversion of hexamethylenamin into formaldehyd is a simple chemical process which will readily occur in an acid medium but will not occur in an alkaline medium.

2. The amount of excretion of hexamethylenamin in the urine is influenced by the size of the dose, by the frequency of administration and by the character of the changes that occur in the acid contents of the stomach.

3. The amount of the subsequent conversion of this hexamethylenamin in the urine is dependent on the degree of urinary acidity, on the duration of exposure to the influence of this acidity and on the percentage concentration of the drug in it; and in order to give formaldehyd conversion in antiseptic amounts the urinary acidity should be greater than 2 c.c. of tenth-normal sodium hydroxid for 10 c.c. of urine.

4. A low acidity may be temporarily increased by feeding certain acid-producing drugs, and this increase in acidity may often be maintained by giving these drugs alternately.

5. Disease of the kidney has no influence whatsoever on the formaldehyd content in the urine.

6. At the level of the kidneys hexamethylenamin in doses of 15 grains three times a day has no antiseptic value.

7. Formaldehyd is present in the bladder urine in some amount in practically every case receiving 15 grains of hexamethylenamin by mouth three times a day, but this dosage is too small a routine from which to expect a reasonable antiseptic benefit in every case.

8. The allied hexamethylenamin compounds do not give greater antiseptic values than pure hexamethylenamin.

I wish to express my gratitude to Dr. Hugh H. Young for the privilege of this study, and to thank him and the several residents of the Johns Hopkins Hospital, Drs. Sladen, Heuer, Gibbes and Vest, for the clinical material.

18. Hexamethylenamin with anhydro-methylen-citric acid.
19. Hexamethylenamin with sulphosalicylic acid.
20. Hexamethylenamin with salicylicic acid.
21. Hexamethylenamin with sodium formate.

THE PSEUDODIPHTHERIA ORGANISM IN THE URINARY TRACT *

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The first of the following cases reported was one in which the symptoms of cystitis were most severe and resembled tuberculous cystitis. The bacteriologic examination and animal inoculation showed no tubercle bacilli, but did show the pseudodiphtheria bacillus in pure culture. Text-books on genito-urinary subjects do no more than mention the pseudodiphtheria bacillus as "an organism occasionally found in the urinary tract" and attach no importance to it pathologically. In reviewing the literature I find a case reported by Rosenow, in which the pseudodiphtheria organism was proved to be the etiologic factor. This organism is frequently associated with the gonococcus in chronic gonorrheas. I offer these facts as a reason for presenting the following case histories, summary of literature and report on the bacteriologic examination of eighty specimens of apparently normal urine.

CASE 1.—In January, 1911, a man, aged 21, unmarried, a farm hand, consulted me for dysuria and frequency of urination and remarked that the condition had been one of progressive intensity, beginning in 1909. The onset symptom occurred on a hot June afternoon while he was at work in the hay-field. He had been perspiring profusely and had been drinking a large quantity of water to quench his thirst. During urination he was seized with a severe pain along the course of the urethra which lasted several minutes and which quieted down in the intervals between urinations only to recur at each micturition. As the symptoms were continuous, and as he had had sexual intercourse a month previously, he thought that perhaps he had a gonorrhea and consulted the local village physician who, without making any physical or urinary examination, quite agreed with him in his diagnosis and gave him medicine to take. He continued to use it for several weeks without benefit to symptoms and then consulted other physicians and took a variety of medicines prescribed by them; acting on the advice of friends, he also took medicines that had helped them when they were in a "similar condition."

It is interesting to note that during the period of treatment, from June, 1909, to the time of consulting me in January, 1911, he at no time had received a urethral irrigation, nor had he been given a hand injection to use.

Examination.—When the patient first consulted me he was well nourished and all of his organs, not associated with the subjective symptoms, were normal; the family history was negative and no tuberculous predisposition could be elicited.

The urinary examination of a twenty-four-hour specimen showed a foul-smelling, alkaline urine, with many ropy, mucous sloughs resembling diphtheritic membrane. The spe-

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cific gravity was 1.014: there were a trace of albumin and an excess of phosphates; otherwise the urine was chemically normal; microscopically some pus and blood were found, but no histologic kidney elements or casts.

The external genitalia were negative, likewise the prostate and vesicles. The urethra was of normal caliber, and other than for a marked spasmodic contraction of the compressor the catheter passed easily and showed a residium of 12 c.c. Urethroscopic examination of the anterior urethra was negative; the posterior urethra in the prostatic portion was much congested and bled freely when touched. The verumontanum was hypertrophied and granular in appearance. The cystoscopic picture was that of a contracted bladder holding only 70 c.c. A diffuse inflammation of the mucosa existed and a highly congested trigon, which also bled when touched. Surrounding the right ureteral opening there was a mass of bullous edema. The left ureteral opening was normal in appearance, and attached to the mucosa posterior to the right ureteral orifice and extending up on the posterior wall was a membrane 2.5 by 3.25 cm. having the appearance of a diphtheritic membrane. It could not be loosened with the tip of the ureteral catheter and a prolonged attempt to loosen it was prevented by the vesical spasm which expelled the distending medium. Any further attempt at catheterizing the ureters was obviated by the increasing intolerance of the bladder.

Diagnosis and Treatment.—As a result of the clinical findings at this cystoscopy, a tentative clinical diagnosis of right renal tuberculosis was made, and the urine from the bladder was sent to the laboratory for bacteriologic examination and animal inoculation. The patient was put on general urinary antiseptics, and local treatment to the bladder was instituted with a view to future cystoscopy and renal investigation.

Laboratory Findings.—A smear examination of the centrifugalized urine brought the report of an organism "identical in morphology with the Klebs-Loeffler bacillus." Cultivation was made and the organism was found to be present in pure culture. I thought that there might have been some contamination due to faulty technic while obtaining the specimen, or in the laboratory, and obtained another specimen and divided it equally, sending one-half to the Vermont State Laboratory and the other half to Dr. H. J. Perry of the Harvard Bacteriological Laboratory with instructions to "study the bacteriology of the specimen." The work was carried on in each laboratory absolutely independently and both reported in substance as follows:

The bacillus was isolated from the urine and was exceedingly variable in size and shape, but in a general way resembled members of the diphtheria group, though averaging thicker, less delicate in shape, with fewer polar bodies and with more breaking up of the bacilli into shorter organisms than is usual with the true diphtheria bacillus. In certain classes, forms resembling in a general way Wesbrook's Type A were seen. From the morphologic point of view it seemed that the bacillus was of the diphtheria group, but not the true diphtheria bacillus, although resembling it in certain ways. When stained with Loeffler's methylene blue it was impossible to bring out the polar bodies, as can usually be done in the pure diphtheria bacillus. On blood-serum the separate colonies resembled closely the diphtheria bacillus. Cultures were made in various sugar-broths, dextrose, saccharose, lactose, dextrin, etc., and the presence of increased acidity, especially in dextrose broth, could not be determined. The negative character of the reactions with the sugar showed that the bacillus might be the pseudodiphtheria bacillus. Guinea-pigs were inoculated with large doses of pure culture in broth and nothing followed the inoculation; the animals were not even made sick by the inoculation.

Cultures were taken from the patient's nasopharynx and from his blood with negative results.

As a result of the continued bladder irrigations and urinary antiseptics the bladder became more tolerant to instrumentation. The physical and bacteriologic properties of the urine, however, and the subjective symptoms, namely, dysuria and frequency, continued. A second cystoscopy and ureteral catheterization were done and the bladder was found to be less contracted and a general betterment of the pathologic appearance was noted. The kidneys were catheterized; the segregated urine was sent to the laboratory and a cultural bacteriologic examination showed that the "specimen from the right kidney contained organisms identical in morphology with the Klebs-Loeffler bacillus. Urine from the left kidney was sterile."

Further Treatment and Course.—Through the courtesy of Dr. Robert H. Herbst of Chicago I received sufficient vaccine to treat my patient and I continued its use most systematically without apparent benefit. This vaccine was prepared as the result of a study into the etiology of twenty-six cases of chancroid made by Dr. Herbst, who reported these cases at the September, 1911, meeting of the American Urological Society held in Chicago. Herbst[1] found that the pseudodiphtheria bacillus resembles very closely the Ducrey bacillus; he found it present in thirteen of the twenty-six cases studied and as a result of treatment by the vaccine prepared he asserts that he cured his patients. I also used an autogenous vaccine without apparent benefit. At no time during my observation of the case did I note any constitutional symptoms, namely, high temperature, etc.

The spasmodic constriction of the membranous urethra noted at the first examination manifested itself at every subsequent examination or treatment of the bladder; overdilatation and local treatment rectified this condition. At about this time the subjective symptoms and urine began to clear up.

The bladder had been irrigated with the various silver salts and boric acid and, as no mercurial solution had been used, it was tried in the form of mercuric cyanid in a 1:1,000 solution. Irrigations were made every day and an attempt at bladder distention was made at each treatment. The urine was sent for bacteriologic examination regularly and while the pseudodiphtheria bacillus was the predominating organism, the *Staphylococcus albus* was noted at each culture as a contamination. As it did not appear in the early urinary cultures, its presence during the stage of improvement was interesting. At the time of writing (Jan. 31, 1912), the staphylococcus is the only organism that can be cultivated, and the patient is cured of the subjective symptoms. The urine is much less puriform.

I consider the finding of the pseudodiphtheria bacillus from the right kidney at the time of the second cystoscopy due to contamination of the eye of the ureter catheter during its passage through the bladder and mass of bullous edema.

In order to appreciate the similarity of this case to that reported by Rosenow,[2] it will be necessary to abstract his article in some detail.

Case 2.—Rosenow's patient was a woman, unmarried, typesetter, aged 23. After removal of the tubes and ovaries, on account of intense nervousness, painful menstruation and vaginal discharge, she was six months later taken with a chill, followed by painful, frequent and bloody micturition, tenesmus, fever and prostration.

Examination and Course.—A cystoscopic examination by Dr. J. Clarence Webster showed a large irregularly ulcerated area, approximately 4 by 5 cm., on the posterior wall of the bladder behind the trigon; the base of some of the ulcers was irregular and grayish, with necrotic patches, while others were clean. Two days after cystoscopy the patient was suffering excruciating pain in the bladder and back, associated with a constant desire to urinate, extreme tenesmus and burning. The twenty-four-hour specimen of urine, 720 c.c., was turbid, but not bloody, and alkaline; specific gravity was 1.015. It contained a large amount of albumin, a few leukocytes and epithelial cells, but no casts. Stained specimens of sediment showed Gram-negative, moderately mobile bacilli

1. Herbst, Robert H., and Gatewood, L. C.: Experience with a Vaccine in the Treatment of Chancroids, The Journal A. M. A., Jan. 20, 1912, p. 188.

2. Rosenow, E. C.: Immunologic Observations in Ulcerative Cystitis Caused by Pseudodiphtheria Bacillus, Jour. Infec. Dis., 1909, vi, 296.

and a fair number of Gram-positive bacilli resembling the diphtheria group. These bacilli were always more numerous in a twenty-four-hour specimen or in a single specimen which had stood for a period. The temperature during an exacerbation of the bladder symptoms went up to 100 F.; otherwise it was normal.

Cultures from scrapings from the margin of the ulcerated area as well as from the vagina yielded the diphtheria-like bacillus in predominating numbers; only a few colon bacilli and staphylococcus colonies developed. Occasional specimens of urine for eight months longer showed a gradual diminution in the number of leukocytes and albumin and a total disappearance of the Gram-positive bacilli. Improvement in the patient's general and local condition was also marked.

Diagnosis.—Inoculation experiments in guinea-pigs showed that the bacillus was one of moderate virulence and that diphtheria antitoxin failed to protect against the organism, as has been the case with other virulent pseudodiphtheria bacilli. Inasmuch as the growth on various mediums resembled closely that of diphtheria bacilli, especially after they had been cultivated for a time, and for the reason that antitoxin failed to protect, it would seem justifiable to regard the bacillus as a so-called virulent pseudodiphtheria bacillus.

Conclusions.—Rosenow summarizes his conclusions as follows:

The diphtheritic ulceration of the bladder in this case was caused by the pseudodiphtheria bacillus for the following reasons:

1. The constant presence of the bacillus in the urine and its predominance in the smears from the scrapings.

2. The specific and peculiar behavior of the blood toward this bacillus, especially after the injection of dead bacteria, with apparent benefit for the patient.

3. The high agglutinating power of the serum on this bacillus and absence of such power on the colon bacillus.

The pseudodiphtheria organism is frequently found in the cultures made from the discharge of gonorrheics.

Through the courtesy of E. L. Keyes, Jr., I have had the opportunity of looking over the data obtained by his bacteriologist in the examination of eighty-six cases of urethritis. The pseudo-organism was found nineteen times, twice pure and in the other instances associated with the gonococcus and the staphylococcus. Dr. Keyes also reports to me another case "involving the anterior urethra almost exclusively. The only organism found was the pseudodiphtheria bacillus, and this was clumped in such masses about the small shreds in the urine that it seemed quite likely that this was the infecting organism."

A. P. Ohlmacher[3] reports that while engaged in the task of recovering and cultivating the gonococcus he encountered the pseudodiphtheria bacillus as an inhabitant of the pus from acute gonorrheal arthritis. The association of this bacillus and the gonococcus was noted on several occasions and from different individuals, and it was one of the features rendering more difficult the recovery of the gonococcus in pure culture. From these observations he concluded that their companionship was not an accident, but was fraught with importance, especially from the point of view of therapeutic bacterial immunization in gonorrhea.

In order to determine the frequency with which the organism inhabited the genito-urinary tract, I obtained the apparently normal urine of eighty prisoners in a penitentiary with which I have a visiting association. The external genitalia were thoroughly sterilized, and the urine was voided into a sterile container and then poured into a sterilized glass tube and centrifugalized. The sediment thus obtained was planted in Loeffler's blood-serum and incubated. Ten of the eighty specimens taken, or 12 per cent., showed a growth of pseudodiphtheria bacilli and in every intsance staphylococci. The ten prisoners from whom the positive urines were obtained were further examined with a view of locating the part of the urinary tract inhabited by the organism. Omitting the technic, it may suffice to say that cultures were made from the anterior and posterior urethra and from the posterior urethra following massage of the prostate. In all the instances the organism was cultured from the anterior urethra and once from the sediment of the urine catheterized from the left kidney.

In a personal communication, Dr. John T. Geraghty of Baltimore informed me that in the study of the bacteriology of prostatitis in connection with the preparation of an article[4] on that subject the pseudodiphtheria organism was not cultivated. This is in accord with my own findings, as it will be noted that I was unable to obtain it from the posterior urethra either before or after massage of the prostate. In the ten instances in which it was found, six acknowledged having had gonorrhea, and two gave a history of having had diphtheria.

Hermann Pfeiffer,[5] writing in 1903, states that he examined fifteen normal and twelve gonorrheal urethras and could, after the study of these few cases, detect a certain constancy of events; in the first series, namely, the fifteen normal urethras, he succeeded eleven times and, in the second series, six times in finding organisms "belonging to the diphtheria group," not only on the cover-glass, but also in great numbers in culture-tubes. The fact that these bacteria are so constantly found on the urethral mucous membrane, is, he adds, so far as his literary knowledge of the subject goes, new.

Sven Wall[6] reports having made pure cultures of the pseudodiphtheria bacillus from the kidneys of cows that had suffered from pyelonephritis.

Many cases are reported of true diphtheria of the renal pelvis[7] and of the bladder, and in going over the literature it is noted that while there is a marked similarity in the clinical findings of the reviewed reports, still in all of the cases there were distinct constitutional symptoms, and the bacteriologic examination was positive.

The clinical symptoms of cystitis in which the pseudodiphtheria bacillus seems to be the causative factor closely resemble the cases of necrosis of the bladder collected and studied by O'Neil.[8] In so far as I could learn, however, in none of the reports collected by him, or in his own cases, was the bacteriology studied. Trauma in each instance was ascribed as the primary cause, with infection as the contributing factor.

Aufrecht[9] in 1882 made experiments in which he sealed the meatus of a large, strong, male rabbit, and *in toto* obstructed urination four times for twenty-four hours. On section of the bladder at necropsy it was covered with purulent masses, thickened and infiltrated, and Aufrecht states that there was nothing to distinguish it from diphtheritic areas in the mucous membrane of the human throat. He is of the opinion that it adds

3. Ohlmacher, A. P.: Pseudodiphtheria Bacillus Infections and their Response to Therapeutic Inoculations, Jour. Med. Research, 1908, xiv, 109.

4. Young, Geraghty and Stevens: Prostatitis, Johns Hopkins Hosp. Rep., 1906, p. 271.

5. Pfeiffer, Hermann: Wien. klin. Wchnschr., 1903, p. 762.

6. Wall, Sven: Centralbl. f. Bakteriol., 1909-1910, Part 1, xiv, 8.

7. Krause, F.: Primäre Diphtherie eines Nierenbeckens durch Operation geheilt (renal pelvis), Deutsch. med. Wchnschr., 1904, xxx, 1060. Menetrier, P.: Bull. Soc. anat. de Paris, 1896, xi, 59. Escherich: Aetiologie und Pathogenese der epidemischen Diphterie, Vienna, 1894, p. 227. Suidi, S.: Nefrite difterica primitiva, Arch. de path., Naples, 1886, iv, 19. Levi, M. R.: Sperimentale, Firenzi, 1885, lvi, 485. Jacobi: Med. Rec., New York, 1882, xxi, 301. Shrady, S. F.: Med. Rec., New York, 1884, xxv, 79.

8. O'Neil, R. F.: Necrosis of the Bladder with Exfoliation, Surg., Gynec. and Obst., May, 1910.

9. Aufrecht: Centralbl. f. d. med. Wissensch., 1882, xx, 881.

weight to the view of Billroth, Tiezel, etc., that in animal organisms there may be microbes that under proper conditions—for example, nutritional disturbance of the bladder wall caused by trauma—may produce deleterious results both by their multiplication and by their change of form.

Realizing the number of instances in which the organism is found in the normal urethra and urine, it would not be beyond reason to consider at least the possibility that the pseudodiphtheria organism may play an important rôle in the cases reported by O'Neil, especially in those described as membranous cystitis, which are pathologically different from the cases of necrosis.

In order to appreciate the plausibility, at least, of the theory that the pseudodiphtheria bacillus is the cause of some forms of cystitis, it is necessary to determine the lesions produced by the bacillus in other parts of the body and to study the present status of this organism in the bacteriologic nomenclature.

In glancing over the vast literature on this subject, I am struck and confused with the various contradictory statements by bacteriologists of great repute. No organism has been the topic of so much discussion and dispute as the so-called pseudodiphtheria bacillus, and it seems as if the last word in the controversy between unicists and dualists has not yet been spoken.

Loeffler in April, 1887, cultured from a diphtheritic membrane two different bacilli, one of which was pathogenic for guinea-pigs, the other harmless. About the same time Von Hofmann-Wellenhof found the same bacillus and called it the pseudodiphtheria bacillus. Their better growth on agar and their shortness and thickness were sufficient grounds for him and Loeffler to separate this organism from the true diphtheria bacillus. Roux and Yersin, however, in 1890, demonstrated that the virulent bacillus of diphtheria may be artificially made avirulent and take on all the characteristics of the pseudodiphtheria bacillus. The pseudobacillus to them is only an attenuated form of the diphtheria bacillus, and investigators like Morel, Martin, C. Frankel, Behring, Ritter and Koplik, shared their opinion.

L. Martin distinguished three varieties of the diphtheria bacillus, a long, a short and a medium type. According to him and his followers, the short type is identical with the pseudobacillus of the German bacteriologists. This view is held by Chatin and Lesieur,[10] Roussel and Job,[11] Schanz,[12] and most emphatically defended in a recent original publication by Laurent[13] of Stockholm, who states that his observations have fully convinced him that the view originally advocated by Roux and Yersin is the only correct one. Zarniko observed that the diphtheria bacillus caused an active production of acid in broth, and the pseudo, faintly acid or alkaline, and Escherich made the statement that the acid producers were always virulent and the non-acid producers avirulent. Exceptions to this rule were numerous enough to invalidate this as an absolute test.

Bacteriologists gradually began to admit that cultural peculiarities, morphology, presence of Neisser granules, chemical activity or virulence for animals and the like all failed to draw a line between the true and the false diphtheria bacillus, and that the only hope for a sure method of differentiation lay in the application of specific serums to neutralize specific toxins. Spronck[14] of Utrecht, experimenting with the short bacilli of the French authors, found two strains without any virulence, but two other strains injected under the skin of guinea-pigs produced edema, loss of weight, lack of appetite and other constitutional symptoms. As antidiphtheritic serum did not prevent these symptoms, he concluded that there exists in the anginas a pseudodiphtheria bacillus, pathogenic for the guinea-pig, until now not known, or mistaken for the true diphtheria bacillus. "This bacillus corresponds absolutely with the small bacillus of Martin."

Alice Hamilton,[15] in this country, followed Spronck's method, found twenty-six different pseudodiphtheria bacilli and divided them into three types and grouped them as follows:

Group 1, non-pathogenic to guinea-pigs.

Group 2, pathogenic to man, "which should be further studied."

Group 3, pathogenic to guinea-pigs.

Two varieties, Hamilton[16] writes, are found frequently in suppurative processes, especially in the pus of postscarlatinal otitis media. In this disease, she says, they are found so frequently as to render it probable that they play an important part in its causation.

Howard reports a fatal case of ulcerative endocarditis in which a pure culture of the diphtheria-like organism existed which did not prove fatal to guinea-pigs.

Rudinger[17] reported a series of cases of gangrenous tonsillitis and pharyngitis in which the pseudodiphtheria bacillus was found in pure culture.

As Pennington[18] says:

> We meet recent evidence that morphologically and clinically the most satisfactory pseudo forms have a decided pathogenicity for guinea-pigs, and from clinical evidence for human beings; hence the harmlessness of these germs cannot be accepted unconditionally, any more than a certain virulence can be attached invariably to a diphtheria bacillus which agrees with some arbitrary requirement laid down by bacteriologists.

From the genito-urinary clinician's point of view, it matters little whether the organism found in the case presented here must be labeled a form of the Klebs-Loeffler bacillus, or a variety of another organism *sui generis*, the all-important fact for us as genito-urinary clinicians is that this organism is or may become a destroyer of health in the human economy, and that in the genito-urinary tract its significance is of greater moment than has hitherto been acknowledged.

Schiötz[19] of Copenhagen and Musgrave[20] of Manila have called attention to the fact that the Klebs-Loeffler bacillus can be driven out by the staphylococcus, and the Danish physician inoculated diphtheria patients with pure cultures of staphylococci with curative results.

It is suggestive, to say the least, that in my case also during the acuteness of the symptoms the pseudobacillus was found alone, and when the staphylococcus made its appearance as a contamination of the frequent treatments the symptoms subsided, and now (Feb. 27, 1912) the urine is free from pseudodiphtheria bacilli, and staphylococci alone are present.

10. Chatin and Lesieur: Rev. d'hyg., 1900, xxii, 509.
11. Roussel and Job: Rev. de méd., 1905, xxv.
12. Schanz: Deutsch. med. Wchnschr., 1898, xxxiii, 522.
13. Laurent: Das Virulenz-Problem der pathogenem Bakterien, Stockholm, 1910.
14. Spronck: Semaine méd., xvi, 317
15. Hamilton, Alice: Toxic Action of Scarlatinal and Pneumonic Serums on Paramecia, Jour. Infect. Dis., March 19, 1904, p. 690.
16. Hamilton, Alice: Pseudodiphtheria Bacilli as Cause of Suppurative Otitis, Especially Postscarlatinal, Jour. Infect. Dis., June 15, 1907, p. 326.
17. Rudinger: Tr. Chicago Path. Soc., 1904.
18. Pennington, M. E.: Virulence of Diphtheria Organisms in Throats of Well Schoolchildren and Diphtheric Convalescents, Jour Infect. Dis., January, 1907, iv, 49.
19. Schiötz, A.: Cure of Chronic Diphtheria Bacillus Carriers, Ugesk. f. Laeger, Dec. 9, 1909; abstr., THE JOURNAL A. M. A. Jan. 29, 1910, p. 422.
20. Musgrave: New York Med. Jour., Dec. 23, 1911, p. 1282.

In the case reported to me by Keyes also, in which the pseudobacillus was "clumped about the shreds," it was alone. In the other cases of chronic urethritis in which the bacteriology was studied it was associated with the gonococcus and the staphylococcus.

CONCLUSION

As a result of my study and observation, it is my firm conviction that under the proper conditions a pseudodiphtheria bacillus in the genito-urinary tract can become a pathogenic organism; that it is more common as an etiologic factor than is appreciated by the textbooks, as evidenced in the numerous cases of chronic urethritis in which it is found, in the cases reported by Rosenow and in the one studied by me.

My findings endorse fully Brown's[21] statement, "that it is not at all uncommon as a sequence of gonorrhea to find a bacteriorrhea in which the urine shows large numbers of organisms of different forms, which undoubtedly tend to keep up the inflammation."

Without asserting that the pseudobacillus is always a pathogenic organism, unless overridden and controlled by the staphylococcus, I do believe that in our branch of medicine also the subject of symbiosis is one for further study by the bacteriologists and of vast clinical interest to us in the treatment of rebellious conditions of the genito-urinary tract.

My appreciation and thanks are due to Drs. E. L. Keyes, Jr., Henry J. Perry of the Harvard Medical School, Bingham H. Stone, E. H. Buttles and Percy Carpenter of the Laboratory of Research, Medical College of the University of Vermont, H. A. Bosma of New York and others for the various courtesies extended during the preparation of this paper.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. TOWNSEND, HINMAN AND HEIDINGSFELD

DR. G. G. SMITH, Boston: There is only one point in which I should not agree with Dr. Hinman entirely, and that is that hexamethylenamin in doses of 15 grains, three times a day, could have no effect on the pelvis of the kidney. It may well be that catheterized specimens from the kidney show a proportion of liquor formaldehyd in the urine which is below bactericidal power, but it seems to me that clinical experience has shown that that dosage is of value, and I think this is one of the instances in which we must take the experimental findings with a grain of salt. The clinical findings indicate that hexamethylenamin has a certain amount of value in those conditions. I should like to ask Dr. Hinman what he considers a good average dose of hexamethylenamin?

We have tried various drugs with it and have met with some difficulty in the employment of nearly all of them. Boric acid, I am sure, has caused toxic symptoms in some cases, and the acid sodium phosphate is likely to cause diarrhea. It seems to me that we have still to find a drug which will increase the acidity of the urine.

DR. M. KROTOSZYNER, San Francisco: Dr. Hinman deserves much credit for his painstaking investigations on the efficacy of hexamethylenamin. Not only the general practitioner, but also the urologist, expects almost wonders from this drug, which, therefore, is given promiscuously and dogmatically over a long period in almost all affections of the genito-urinary tract, in which no proper diagnosis has been made. Of particular importance in this connection I consider the fact which was brought out by Dr. Hinman's paper, that large doses of hexamethylenamin, for instance, 15 grains three times a day, are in the majority of instances ineffective on the underlying condition. I am in hearty accord with Dr. Heidingsfeld's demand for a continuous and personal supervision of the Wassermann reaction. Unless we can follow out our treatment by the personal study of the test at close range, I should not lay much stress on it. I also fully believe that our old standby, mercury, has proved to be just as efficacious and indispensable since the advent of salvarsan as it was in the presalvarsan era.

DR. H. A. COHEN, Minneapolis: I do not believe that time will banish the insoluble salts of mercury. Finger, whose work on syphilis is done with as great care as in any clinic in the world, holds that, after the primary stage and very early secondaries, salvarsan should be used with great caution. Already 147 fatalities have occurred. In the sixty-one years of the use of intramuscular injections of mercury, but sixty fatalities have been reported. He does claim that the *sterilisans magna* can be realized by a large early dose of salvarsan in a Wassermann negative case. The many neurorecurrences which take place are conditions which are found most frequently in the late secondary and the tertiary cases, and those neurorecurrences are due to the toxic salvarsan and toxic arsenic condition. We therefore have a double condition to watch, that is, the dosage of the drug itself and the possibility of the body being thoroughly saturated with the spirochetes and never being attacked.

DR. A. L. WOLBARST, New York: Dr. Cohen spoke of 147 deaths from salvarsan reported by Finger. In considering the toxicity of salvarsan, the number of deaths that have been reported must be judged in comparison with the total number of injections that have been administered. If two hundred or five hundred or one thousand injections had been given, and of this number of patients 147 had died, it would be fair to say that the remedy is *per se* a dangerous one; but many hundreds of thousands of injections have been given, many of them by incompetent men and in direct violation of every surgical canon, and, if in this great aggregate there have been but 147 deaths (conceding the number for the moment), it stands to reason that the deaths were not due to the salvarsan itself, but to some extraneous or concomitant conditions, acting in those particular cases, that were not observed in the patient. The patient might have had an idiosyncrasy to arsenic. Such deaths might have been avoided if a preliminary injection of a small dose had been given, as suggested. In the majority of cases in which death followed there have been serious errors in technic. Strict asepsis and functionating kidneys are imperative. When I read of a death following salvarsan and scratch beneath the surface, I am sure to find a serious error, either in the manner of administration, or in the fact that the patient was not suited to the treatment. In most of the fatal cases, if not in all of them, the patient's kidneys do not eliminate the arsenic content of the salvarsan, with the result that toxic results follow. In some of these patients the kidneys are so poor that they cannot eliminate a strong dose of mercury or any other toxic drug. Surely, a fatal result in such cases should be ascribed not to the drug, but to its faulty administration.

We are still in the experimental stage in the use of salvarsan, and while we have a great deal to learn regarding its effectiveness, certain things have been proved which make it by far the most important single factor in the treatment of syphilis. Whether salvarsan should be used exclusively in the beginning, or in the middle, or toward the end of syphilis must still be determined, but we do know that salvarsan has given wonderful results in every stage and form of human syphilis. True, it has occasionally failed to come up to expectations, but so has mercury and so has every other remedy for every other human ailment. We all know that there are some cases that resist mercury, and the harder the mercury is pushed the stronger the antagonism to the drug becomes. The same may be true of salvarsan. I believe, however, that with salvarsan at our command we can attack syphilis with greater certainty of good results than ever before. I think it will in time supersede mercury as our first reliance in syphilis. We are not yet quite ready for that, because we do not know enough about it, but, if I can judge from my own experience, covering about three thousand injections, I am satisfied that mercury will eventually become the second line of attack — a reinforcement of salvarsan, as it were. In the meantime, I think it proper that both drugs

21. Brown, T. R.: Johns Hopkins Hosp. Rep., 1902, x, 11; In Osler's Modern Medicine, 1909, vi, 236 and 218.

be employed in every case of syphilis. Finally, I would add that these remarks apply equally well to neosalvarsan as to salvarsan.

DR. E. G. BALLENGER, Atlanta, Ga.: My experience with salvarsan has been that the greatest danger comes not from giving too much, but from giving too little. We should repeat medium-sized doses and keep them up for a considerable period of time, administering mercury either simultaneously or later. I think the danger of neurorecurrences comes when we give but one or two doses in the early secondary period. The neurorecurrences that I have seen have almost invariably been in that stage of the disease, and improvement has always followed the repetition of salvarsan and neosalvarsan. I think that fact points away from the toxic effect of the remedy, and I have not hesitated to repeat the dose of salvarsan. At first I was in doubt, but the improvement was so prompt when I repeated the injections that I have since repeated them as soon as I have seen evidence of auditory or ocular neurorecurrences.

Instead of pitting salvarsan against mercury we should pit both against syphilis. Of course, we have secured good results with mercury in the past, and yet we have but to think of the many cases of paresis, tabes, aneurysm, cardiac lesions and various other luetic affections to see wherein mercury has not done all that it should have done. It has had about four hundred years' trial. Certainly the advances we have made enable us to make better headway and to give the patient much more satisfactory treatment than formerly.

As has been emphasized by nearly all discussing the treatment, we cannot have a routine method. We must treat the patients individually and persistently until the clinical symptoms disappear and the blood and spinal fluid show negative serologic tests.

DR. J. T. GERAGHTY, Baltimore: In the first fifteen cases in our clinic in which salvarsan was employed, two neurorecurrences were found within a few months. These patients received only one injection and no other treatment. Subsequently mercury and repeated injections of salvarsan became the routine, and during the last two years we have not had a single neurorecurrence in the cases treated in this way.

DR. LOUIS E. SCHMIDT, Chicago: I am not a believer in giving one injection of salvarsan and then a Wassermann, because no matter whether or not the test is carried out by an expert a negative reaction is not an absolute indication of cure. I believe that the intermittent form of mercurial treatment should be kept up for an indefinite period of time. If you give salvarsan and find the reaction negative, and then repeat it in the course of thirty or sixty days, and again find that you have a negative Wassermann, I hardly see why you should expect later manifestations. I think that we should give repeated doses, and alternate with mercury, and then rest from thirty to sixty days and watch the reaction. During the first year we should give an interrupted course of mercurial treatment as we did formerly, and naturally, in the following years keep up the Wassermann reactions and at the same time continue mercurial treatment, but not with the same regularity as during the first year's treatment.

DR. VICTOR VECKI, San Francisco: I know that we have to take the middle way. We are between the one extreme that Professor Finger of Vienna represents, and the other extreme represented by Wechselmann. The latter lays all the deaths from salvarsan at the door of mercury. He maintains that mercury rendered the kidneys insufficient, causing vascular hyposthenuria, and that consequently the kidneys were not able to eliminate the salvarsan and thus caused all these deaths. It is not even the fault of the technic; you can do anything you wish with salvarsan, only do not use any mercury.

While I have reported a fatal case of syphilitic myelitis after intramuscular injection of salvarsan, I fortunately have no experience with death caused by salvarsan directly. I think that this is due to the circumstance that I did not wait for Wechselmann to tell me to watch carefully the functionability of the kidneys before using salvarsan. The therapy of syphilis belongs to the urologist. The dermatologist may be a fine man in diagnosing the cutaneous symptoms of lues, but when it comes to treating syphilis, the dermatologist cannot have the proper idea of the functions of the kidney. Our present methods of testing the kidney functions are rather crude, and I am sure that in the future the blood itself will have to be examined more carefully. What I want to emphasize is, in answer to any one who maintains that mercury did not do the work in the last four hundred years, that it did whenever it was properly employed. I have never seen the fourth stage of syphilis in a case that was treated properly with mercury.

DR. M. L. HEIDINGSFELD, Cincinnati: I was favorably impressed with the remarks of the first speaker in reference to the reports in regard to Wassermanns. A Wassermann to my mind and in my experience is thoroughly trustworthy if it is carried out properly. It is a test of great detail and accuracy and requires most painstaking methods, and I am sorry that a great many laboratories are not particular to give reliable reports. I know that their methods are not accurate.

It is perfectly apparent to every one that mercurial treatment is an aid in these cases, but I cannot see the rationale of giving mercury if it is not necessary. If we effect a complete cure in some of these early cases of syphilis, in the initial stage, what is the object of subjecting a man to two or three years' of mercurial injections and inunctions when that has proved itself to be unnecessary? I think that the Wassermann reaction is the mentor and the oracle of syphilis; it is the arbiter and should go hand in hand with the consulting physician.

We have had four hundred years of mercury, and we have had four hundred years of unsatisfactory results. We have had many years of deep muscular injections of insoluble salts and the Wassermann has shown that many of these cases have been treated successfully. I believe in mercury injections; I believe in cacodylate of sodium, but they must be used in connection with the Wassermann, and the Wassermann gives us the best information in that direction.

We must not be guided by any one man, and particularly not by a man like Finger, who has been pessimistic in regard to salvarsan from the beginning. The unfavorable results, according to Ehrlich, are not due to salvarsan, but to errors in technic, and since syphilographers have been using distilled water they have eliminated them almost entirely. We have evidence that some of the cases of death were due to errors of technic, the use of water that was not distilled. It is notorious that the men with small experience are the men with most unfavorable results; the men with large experience have had few unfavorable results.

CORRECTION OF IMPEDIMENTS OF SPEECH IN OUR PUBLIC SCHOOLS *

HARRY F. McBEATH, M.D.
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There is no common ailment which I believe has received less consideration at the hands of the medical profession than that of stammering. The subject was given but small consideration up to the beginning of the nineteenth century, at which time it was seriously studied by Arnott, Columbat, and Schulthers. A little later came the period of surgical enthusiasm, originated by the work of Diffenbach. Through the efforts of Kussmaul, Gutsmann, and Wyllie the knowledge of the subject was placed on a sound scientific basis. Perhaps the most exhaustive study ever given the subject was by our own noted scientist, Prof. Alexander Melville Bell. To-day the question is kept alive by a limited number of men, foremost among whom may be mentioned Dr. G. Hudson-Makuen of Philadelphia and Dr. E. W. Scripture of Columbia University.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

The medical profession as a whole, however, has never given the subject the serious study it deserves. Patients are frequently advised by men otherwise competent in their line of work to pay no attention to their stammering, as they will in time outgrow it. As a result of our neglect the field has been almost entirely usurped by the charlatan. This not only deprives the stammerer of the help to which he is entitled, but discourages properly directed work along this line. We have never before given weight to the work of mountebanks, but in this connection it would appear as though their results were the basis for the poor prognosis generally given out by medical men.

Analyzing stammering as we do other maladies, do we find about it anything that would place it in the category of hopeless cases or justify the indifference usually shown these patients? There has been much discussion regarding the difference between stuttering and stammering, and while it may be of clinical interest, essentially they are but a different expression of the same underlying state and may, therefore, be covered under the one term stammering.

The most common causes of stammering may be given as conscious or unconscious imitation, shock, and the exaggerated effort to speak, such as occurs during and after debilitating diseases. These causes are active up to the time that stammering is established, when they become inoperative. After this the condition is dependent on emotional disturbances, in the presence of which the patient is unable to speak correctly because he is afraid of stammering. Therefore, stammering is a psychoneurosis, with fear its basic element. With the elimination of fear, there is a speedy return to normal. The stammering patient is entirely ignorant of how to direct his efforts to produce normal speech. He knows what he wants to do, but does not know how to do it. Just as soon as he acquires the knowledge of how to proceed to speak he is relieved of his fear of stammering. In the stammerer the psychologic processes of speech are normal up to the point at which the central innervations leave the mind. Here the neurosis assumes control and gives rise to a clonic or tonic spasm of the muscles controlling speech.

The treatment consists in bringing to a state of perfection, in the order named, the acts of respiration, phonation, and articulation. Perfect respiration not only insures a sufficient volume of air for voice production but also relieves the spasm, and puts under volitional control the muscles concerned in speech. In the words of Dr. Makuen, "good breath control is absolutely essential to good voice production." With reference to phonation Professor Bell tells us that "voice is the material of speech, and this fact in all its meaning the stammerer has to learn. He must have voice, whatever else he lacks, and must therefore acquire command of a full, strong, unbroken stream of sound."

Articulation is of minor importance and need not occupy the mind of the patient until after his speech is stable. As tersely expressed by Professor Bell, "the mouth tube is constantly varying in shape, but it is always a transmitter only, and never an originator of sound. All effort thrown into the mouth, jaws, lips, or tongue is futile. These should be passive as nearly as possible." The patient having mastered the exercises which give him control of his speech apparatus there remains but the psychologic condition of habit with which to deal, and continued practice along correct lines in time displaces the abnormal in the channels of the mind.

Prof. Frank A. Reed, who elaborated on and made use of Professor Bell's principles in thousands of cases, puts his views in the following words: "The whole philosophy of the scientific overcoming of the stammering habit may be summed up in the simple statement that it consists of the acquirement of sufficient self-control and skill to assure the complete control of the breath at the diaphragm and its absolutely free, unhampered outflow from that point." Dr. Scripture insists that before treatment is instituted a diagnosis should be made by a competent physician. At this time the patient should be examined and treated for physical defects which would tend to make his recovery difficult. Nasal stenosis should not be overlooked. Dr. Makuen writes: "I have been struck with the frequency of intranasal obstruction and pressure in these cases due to irregularities of the septum, and almost all stammerers have a marked irritability of the pharynx, which I think is to some extent responsible for their difficulty of speech."

Having made sure that these patients will be benefited by the application of the principles herein advised, there is no reason why they may not be entrusted to a specially instructed teacher. It does not require a mind with the technical training of a physician to comprehend the principles on which the work is to be carried out. The most approved methods for gaining control of the physiologic processes which go to make up speech, having been given in detail by those competent, can surely be followed by a properly trained teacher. It is special work and the classes must be small; one year, however, will usually accomplish the desired results, and where can we find another special department which in any length of time graduates a child with a return to normal to crown its efforts?

Statistics covering over three thousand cases show a complete loss of the impediment in 80 per cent. This has been raised to 98 per cent. in three hundred cases treated in the public schools of Milwaukee, where the pupils are held in special classes at the discrimination of the teacher. Quicker results would be obtained if stammerers received all their instruction in special classes. Much is lost by allowing them to take their regular studies under teachers who do not understand their condition. These special departments once established will be in a position to take advantage of most cases at their inception, thereby gaining a maximum result with a minimum effort. There are in the schools of the United States 13,143 deaf pupils. Of these 75.4 per cent. are being taught speech. Does it seem reasonable that so little should be done for the multitude of stammerers, who with comparatively small effort could be made the equals of their fellowmen?

The attitude assumed by some, that the stammerer gets along as well as any one, and that it matters little whether or not he is relieved, may be pardoned in the laity, but can hardly be tolerated in the medical profession. Those who are in a position to know can verify that there are but few afflictions in which the mental anguish is greater than in the stammerer. The indifference on our part may possibly be explained by the fact that the treatment of these patients is not well carried out in the office, hospital, or sanatorium, but is best handled in the class room. The fact that we are not in a position to treat these patients, however, and do not know where to refer them, does not help the stammerer or excuse us. We should see that there are places, in every large city at least, where the stammerer will receive the kind of treatment we know is correct. This can be done by putting our seal of approval on the

diploma of every teacher properly trained for this line of work.

It is a fact of no small significance that the school superintendents in fifty of our largest cities are almost unanimous in their opinion that the stammerer's plight is of sufficient gravity to warrant special attention in the public school. Several of them in fact have installed a department for the correction of stammering, where, if we were in a position to recommend a teacher of proper qualifications, the success of the undertaking would be assured. In some instances these departments are placed in charge of teachers whose special preparation was for work with the deaf. This is a misdirected effort, and naturally the results are not commensurate with the labor expended.

That the stammerer can be successfully handled in the public school there is no question. What is needed is the help and cooperation of the medical profession in encouraging the installation of a department for the correction of impediments of speech, to see that teachers for these departments receive proper training, and to furnish school boards with information regarding the stammerer.

Could the American Medical Association do better than to establish a department similar to the Volta Bureau maintained at Washington, D. C., by the American Association to Promote the Teaching of Speech to the Deaf? Through its bureau the efforts of this society have brought into use the most approved methods for handling the deaf in nearly all public and private schools where the deaf are being instructed. That the great majority of stammerers do not know where to turn for help other than to the institution of the quack is the condition present in the United States to-day. There is a sufficient number of stammerers to warrant the establishment of a special department for them in our public schools. The results are more brilliant than it is possible to obtain from other special lines of work, such as with the blind, deaf, and defective children. While the work may be greatly advanced by the medical profession, as individuals we are not prepared to handle this class of cases. That the stammerer is allowed to go uncorrected and that there is so little effort made to improve his condition is a disgrace, not only to our profession, but to the community at large.

It is my sincere hope that this body will take it on itself to inaugurate a movement which may be the means of encouraging and putting on a proper basis the correction of impediments of speech in our public schools.

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ABSTRACT OF DISCUSSION

DR. ELMER L. KENYON, Chicago: The extremely important sociologic side of this problem, having to do not only with stammering, but also with other defects of speech, has never been adequately met, at least in the United States.

It is certainly true in Chicago, and doubtless in all other large cities, that there are thousands of children who have defects of speech which, if not corrected, are bound to make their success in life difficult and often impossible. It is also true that among this great number of stammering children, a large percentage have not enough means to pay for the rather expensive private teaching which they must have. It is also to be said in this connection that, even if one with defects of speech has money to undertake treatment, there are comparatively few places in the United States where he can go and have competent as well as honest treatment. Not only because the problem is a medical problem fundamentally, but also because if it is handled by physicians it will be handled honestly, I think that the medical profession should concern itself with this disorder. So far as the sociologic problem is concerned, treatment should be undertaken in the schools by all means. Speaking with some reservations, I think that this is where it belongs. The children must go to school, and, therefore, they can all be reached and reached early, which is of great importance. If I had any critical remark to make about Dr. McBeath's paper, I think it would be that, perhaps, he did not emphasize the difficulties of curing stammering so much as he might rightly have done, though I am sure that he understands them. These difficulties apply especially to the fully developed cases. Stammering begins ordinarily just before or just after the child goes to school. There should be machinery ready in every city to perform the task of preventing the further development of the stammering if when the child first enters school he shows a tendency to do this. The difficulties to be overcome are not small, but the needs warrant the effort. Behind such an effort there should be competent medical and psychologic oversight.

MRS. FRANK REED, Detroit: I have been in this work for twenty-five years. I believe that no class of afflicted people has been so imposed on by unscientific and unskilful treatment as the stammerers. The time has come for scientific men to look into this subject and to advise and educate the public. The average person—parent, physician or teacher—feels that the child will outgrow its speech defect. Teachers generally do not know what to do, and say to the stammering child, "Hurry up, say what you have to say or keep quiet." This embarrasses him; his mind becomes centered on his difficulty and it grows. Public schoolteachers do not understand stammering children and do not know how to train them. They go to some school and observe a class for a day, or ten days, or read some fake advertisement and think that they know all about the method of treatment, and then they try it on the children. This is not fair to the children. The difficulty in correcting stammering is great, but it can be overcome. We should recognize the difference between difficulties and impossibilities. Just because a thing is difficult is no reason why we should not undertake it, but it is a reason why teachers who undertake to correct stammering should have a thorough scientific training in the mechanical and psychologic processes of speech. The subject of fear enters largely into the training of these children. If the child is taught by a competent teacher to keep his emotions under the control of the will, the result will be more satisfactory. Statistics show that most of the stammering occurs during the school age. The teacher excites the child, or does not know how to handle him. It is time that teachers have the proper training in order not only to correct, but also to prevent the misery. When these children are relieved of their difficulty they are normal. We spend thousands of dollars in our schools for training defectives, and when all that is possible has been done for a thousand of them, it does not equal the benefit to one cured stammerer.

DR. THOMAS J. HELDT, Columbia, Mo.: As Dr. McBeath has pointed out, this is really a school problem. If we could have the children under medical inspection from the beginning of school life, we should be able to select those who could not be cured by proper training by a competent teacher. If, while under the specially trained teacher, there is no improvement, then the real cause of the trouble has not been disclosed and the stammerer's fear has been improperly approached. Dr. McBeath, in speaking of this fear, said that it was the source of great anguish to the stammerer. Just what is it that lies back of that anguish? Dr. McBeath referred to it as the fear of stammering. I think that it is not only the fear of stammering, but also something deeper. Cases treated by the Freudian method have brought out surprising results and suggest that it is some incident in that child's or adult's life that is the cause of this fear. I call to mind a case seen recently—a young lady of 19. There is only one time when she stammers, and that is when she is introducing a friend. Then she is worried and flustered. The thing lying back of that disturbed state is not simply the fear of not being able to select the right words and make

the introduction properly, but probably some incident in her life that must be approached by psycho-analytic methods. I believe that psycho-analytic treatment promises worthy results in these cases.

DR. TRUMAN W. BROPHY, Chicago: It seems to me that our duty lies in the direction of doing all we can to place persons who are thus afflicted in the hands of those who are eminently prepared to correct the defect. Other defects, aside from stammering come into our experiences in the management of those who are not able to speak distinctly. For a long time I have been trying to help these persons by directing them to experts in phonation. Such teachers as Dr. Kenyon, Dr. Hudson-Makuen of Philadelphia, Dr. Scripture of New York and Mrs. Reed of Detroit are able to do so much to assist those afflicted in this way, help them out of their difficulties and put them in a position to go through life as others do, that I feel that we should recommend these persons to them for treatment.

DR. A. T. RASMUSSEN, La Crosse, Wis.: I devote a good deal of time to the practice of facial orthopedia, commonly known as orthodontia. A case comes to my mind of a bright boy, 15 years old, whose parents brought him to me stating that he stuttered, and asking that, if possible, I find a reason for it. They said that he stuttered seldom, but that when he did, it was very bad. There seemed nothing wrong about the boy's condition except some slight oral defects. I performed an oral operation, correcting a slightly undeveloped maxilla, and gave the boy a great many suggestions. He does not stammer now. Whether it was altogether the suggestion, or whether it was the treatment, or whether it was a combination of the two, I am not prepared to say, but I think that we should take into consideration the possibility of this defect being due to some pathologic condition in the mouth.

MRS. FRANK REED, Detroit: I think that the gentleman who has just spoken has made it quite clear to us that any physical defects which are present should be corrected, and that possibly such correction would give the child a suggestion that he can talk all right when he has learned the process of speech.

DR. H. F. MCBEATH, Milwaukee, Wis.: Dr. Kenyon and Mrs. Reed have made clear to you the disadvantages to the individual stammerer, and Dr. Brophy makes the suggestion that they be sent to eminently able people for correction. Knowing the number of stammerers in this country, we see that but a small fraction can be handled by the few who are capable of doing the work. What is needed by the schools is an outline of the principles which should be followed so that the teachers shall not be permitted to continue experimenting. In twenty-six cities in the United States the number of stammerers in the schools is not even known. In twelve cities the schools are attempting to do this work and are getting good results through their special teachers.

Nearly all of the school superintendents from different parts of the country in answering my questionnaire express themselves as seeing the need in the near future of establishing a department for the stammerer. It seems to me that the American Medical Association might outline a superior method which would be a great help to these educators.

Underweight Schoolchildren.—In one of the public schools in Philadelphia, Walter W. Roach found that ten pupils between 6 and 7 years of age were 62 pounds underweight, or an average 6 1/5 pounds per child; eighteen pupils between 7 and 8 years were 110 pounds underweight, or an average 7 11/16 pounds per child; fifteen pupils between 9 and 10 years were 93 pounds underweight, or an average 6 1/5 pounds per child; sixteen pupils between 10 and 11 years were 165 pounds underweight, or an average 10 1/3 pounds per child; six pupils between 11 and 12 years were 58 pounds underweight, or an average 11¾ pounds per child; twelve pupils of 13 to 14 years were 167 pounds underweight, or an average 14 pounds per child.—Paper read at Buffalo Congress on School Hygiene.

A METHOD OF CLOSING A SINUS BETWEEN THE ANTRUM OF HIGHMORE AND THE MOUTH *

L. W. DEAN, M.D.
IOWA CITY, IOWA

The topic with which this paper deals has been chosen for three reasons: first, because I have had so much difficulty myself in eradicating these sinuses; second, because I see so many sinuses left after others have operated; and, third, because a search of the literature has failed to furnish very much information regarding the technic of such a procedure. Since selecting the topic I have operated in twenty-three such cases. They were all cases of alveolar necrosis with antrum involvement, with the exception of two cases, or they were cases of permanent sinus following an operation for antrum suppuration secondary to alveolar necrosis. The two exceptions were, first, a large infected dentigerous cyst, lying external to the antrum. This was drained into the nose through the antrum. And, second, a case of composite follicular odontoma which was also drained into the antrum and through it into the nose. With the cases of alveolar necrosis and Highmorian empyema a Denker operation with the complete removal of the necrotic bone was performed.

Various methods for closing these sinuses were tried. Those tried at first gave uniformly bad results. The perfected operation gave about ninety-five per cent. good results. I will describe simply the technic of that part of the operation which was performed after completing the Denker operation, and also the various methods attempted in the order in which they were tried.

First, I removed the necrotic bone and then the inferior portion of the alveolar process. Just enough of the latter was removed to bring the periosteum of its inner and outer surfaces together. The two layers of periosteum were then sutured with interrupted sutures of black Chinese silk, No. 4. These sutures did not hold but tore out within a few days notwithstanding the fact that they were carefully cleansed every two hours with hydrogen peroxid.

Second, the periosteal flaps were prepared the same as before, and, using the same silk, by means of double-armed sutures the threads were introduced from within out, just above the bone. These sutures held better than the first but tore out in two or three days.

It was now manifest that the Chinese silk was not the proper substance for suture material. It would become soaked with saliva, swell, and naturally become crowded with micro-organisms. It was quite impossible to keep these sutures clean.

Third, silk-worm gut was substituted for Chinese silk as in the second method. These sutures could be kept clean and held several days longer than the others, but not long enough to secure healing. The silk-worm gut would cut through the mucous membrane and the periosteum.

Fourth, various substances as gauze, pieces of rubber tube, lead plates, etc., were placed within the loop of silkworm gut, on the inner surface of the alveolar process and a second piece placed underneath the outer ends before they were sutured. This was done with the hope of preventing the sutures from cutting through the membrane and periosteum. The pieces of gauze which

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

are so successful in similar sutures on the skin could not be kept clean in the mouth and soon caused trouble. The lead plates were much more difficult to apply than the rubber tubing and had a tendency to cut the membrane. Whole pieces of small rubber tubing or pieces cut longitudinally in halves were used. These sutures would hold nicely for from five to seven days when they would tear out and the sinus would be reestablished but not so large as before.

It was evident that the cause of our trouble was not now due to the suture but to the fact that sufficient bone was not removed to allow apposition of the periosteum without too much tension on the suture.

Fifth, the method which I consider the very best was used. It is the one that we have used in the last half of our operations and while it has not been successful in every case, it has given us 95 per cent. good results. The method is as follows: After completing the Denker operation and being sure that there is excellent drainage into the nose, the alveolar process is attacked. After removing the necrotic bone completely, enough of the inner and outer lamella of the alveolar process is removed to allow of perfect apposition of the flaps that have been previously lifted from its inner and outer surface. These flaps must come nicely together so that it is not necessary to have any tension on the sutures. Then I place along the inner and outer surfaces of the alveolar process at this point a piece of small rubber tube sufficiently long to allow it to be tucked underneath all the sutures; then using double-armed silkworm-gut sutures, a sufficient number are introduced from within out, the loops resting on the rubber tube on the inner surface of the alveolar process, the knots being tied on the rubber tube on the outer surface of the alveolar process. Care should be exercised to tie the sutures just tight enough without getting them so tight as to produce pressure-necrosis of the flap. These sutures are cleansed hourly with hydrogen peroxid following the operation. The nurse must be exceedingly careful to clean in and around the sutures and tube thoroughly. If this operation is done at the time of the antrum operation the incision for the Denker operation is made high up and is entirely separate from the incision on the border of the alveolar process. The periosteum, from the outer surface, is elevated completely without being torn and handled with great care while the necrotic bone is being removed and the inner and outer lamellæ of the alveolar process are being cut down.

With every case of necrosis the operator must exercise his individuality in making the cut on the border of the alveolar process so as to get the best possible apposition of periosteum. The results of this operation have been surprisingly gratifying to me. As a rule the wound margin remains clean, the sutures remain clean, and when they are removed on from the seventh to the tenth day leave behind a well-healed wound. When I attacked this problem last summer I did not expect such gratifying results. It is an operation that I can recommend for trial.

ABSTRACT OF DISCUSSION

DR. THOMAS L. GILMER, Chicago: I should like to ask Dr. Dean if the operation he described for curettement of the maxilla is not similar to the Caldwell-Luc operation.

DR. DEAN: The Denker operation differs from the Caldwell-Luc in that the incision is on the anterior wall of the bone. It is practically the same operation.

DR. TRUMAN W. BROPHY, Chicago: I congratulate the author on his success in closing the sinus, but in my experience the greatest difficulty is in keeping it open. Most surgeons find it difficult to keep it open until the cavity is in a healthy condition. When I succeed in doing this, I always feel that I am fortunate.

The question of sutures within the mouth has been to me one of the great problems. In my earlier experience I had the same results with silk that Dr. Dean has had; I therefore abandoned long ago the use of anything in the mouth that would absorb the secretions, using only silver and horsehair sutures and lead splints. I have had trouble in finding horsehair that could be relied on for sufficient strength for this purpose. It may be kept in the mouth a month, if necessary, without causing any irritation.

DR. G. V. I. BROWN, Milwaukee, Wis.: Some time ago I was operating where they had the most satisfactory horsehair that I had ever used. The hospital authorities took the hair out of the tail of the ambulance horse and boiled it. Prepared in this way it is soft and pliable and not brittle. Sometimes, however, I have found it treacherous. We never have had any infection from it in the hospital, where it has been used a long time.

DR. C. H. OAKMAN, Detroit: In antral cases in which the palatal bone is necrotic I seldom find it necessary to divide the soft tissue overlying the hard palate, but rather cut high above the teeth or amputate the roots of the molars or bicuspids, making a wound sufficiently large through which to remove the necrotic bone. Within the last eight months I have successfully treated four or five cases in which a portion of the palatal bone was necrotic in this manner. In chronic cases, in which the adjacent sinuses are liable to be involved, I fit a vulcanite plug into the wound. This is held in place by the cheek and affords the necessary drainage. In this way the topography of the palate is little affected, which I believe to be of the utmost importance.

DR. TRUMAN W. BROPHY, Chicago: About three years ago I found that the hair of the tail of a bull is much softer, larger and stronger and will endure a great deal more tension than horsehair. It sustains 25 per cent. more weight than horsehair.

DR. L. W. DEAN, Iowa City, Iowa: I appreciate the discussion regarding the kind of horsehair which should be used. I did not mention the use of horsehair in my paper. It was tried, but its quality was so poor that it gave no satisfaction.

THE SURGERY OF INFANTILE PARALYSIS *

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CHICAGO

During the early days after an attack of acute anterior poliomyelitis there is usually little to be done except to make the patient as comfortable as possible. Pain is often so severe that massage and electricity cannot be used, and the only important detail of the treatment is the careful prevention of deformity.

This paper will deal only with the treatment of paralysis of the legs and the trunk, as paralysis of the arms is much less frequent, and would require too much additional time to consider.

The most common deformity following infantile paralysis is the dropping downward of the foot at the ankle-joint, pes equinus. In some cases this is not due to a permanent paralysis of the anterior tibial muscle and the toe extensors, but to the fact that in many instances the attending physician takes no measures to hold the foot at a right-angle during the first few months after the attack. As a general thing the patient is confined to the bed for some weeks or months, and the

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

usual position in bed is with the feet pointing downward nearly or quite in the same line as the leg. The return of power, in cases in which motor power actually does return, is often too slow and gradual to balance the structural shortening of the gastrocnemius and soleus, and by the time the full power has returned the Achilles tendon is too short to permit of dorsal flexion.

Although the shortening is not actually in the Achilles tendon itself, but in the muscle fibers, custom has sanctioned the use of the term "shortened tendo Achillis." This shortening, which generally requires an operation for its relief, can be and should be always prevented, either by a light splint of the Volkmann variety, or by a posterior molded plaster-of-Paris splint, or some similar apparatus, easily removable for the daily massage and passive and active movements. By such treatment, many patients will recover a considerable degree of muscular power which would otherwise either be lost entirely or regained much later by the aid of operative interference. In a similar way, contracture deformities at the knee must be carefully prevented, either by suitable splints or by weight and pulley traction. Contracture of the tensor vaginae femoris (tenso fasciae femoris), which is an extremely difficult deformity to treat in its later stages, can be readily prevented, in most instances, by not allowing the leg either to rotate outward or to be abducted at the hip. Hoffman's work in this line is well worthy of attention.

In case, however, that some or all of these deformities have occurred, radical treatment is necessary. If the case be recent, forcible manual correction, with or without an anesthetic, may prove successful, especially if done by degrees at several sittings. A removable cast or a simple brace must now be worn until either the recovery is complete or until the time for radical operation has arrived. Every effort must be made to induce the patient to use actively all the weakened muscles during regular exercise periods every day. In small children considerable ingenuity may be required to devise exercising games and to stimulate the patient's interest and cooperation. Massage is of value, and galvanic electricity may be of some assistance. The faradic current is useless.

This line of treatment must be carried out until the period of spontaneous repair, or the probationary period, has been passed. This period is not a definite one. It is not probable that any improvement in the condition of the ganglion-cells in the cord will occur after the lapse of a year, but it is perhaps possible. It is my custom to postpone operative interference, so far as practicable, until two years after the attack. During this two-year period, however, some of the contracture deformities may become so powerful that the braces or apparatus can no longer control them. It is necessary in such cases to perform conservative tendon-lengthening operations, although it is always advisable to avoid them whenever possible until the probationary period has been passed.

CORRECTION OF LATE DEFORMITY

This must be done in all cases before the radical operation is performed, but can in most cases be done at the same sitting with the radical operation in children. It consists most frequently, as a matter of practice, in the lengthening of the Achilles tendon.

While in cases of congenital club-foot a simple transverse tenotomy is perfectly safe and satisfactory, increasing experience has led me to prefer an open lengthening of this tendon in cases of both flaccid and spastic paralysis. One patient with poliomyelitis and one patient with spastic cerebral paralysis on whom subcutaneous tenotomy was performed in this clinic have had loss of function because of too great lengthening of the tendon, and have required secondary operative shortening. Waterman and Hibbs have reported similar cases. This tendon should, then, be lengthened by the simple step method, and sutured with fine silk. No variations of this method offer any advantages over it. The methods of Bayer and Gocht are ingenious, but no better. The sheath should always be restored by suture.

In many cases other work than lengthening the Achilles tendon may be necessary. All existing deformities must be corrected by suitable means, such as manipulations, forcible redressment, and even operations on the bones. If such work be neccessarily of much severity, it may be well to postpone the more delicate operative procedures until all reaction has subsided. This is especially advisable when oozing blood from bony surfaces necessitates temporary drainage, and also when the skin incisions have been unavoidably placed where they would lie directly over the site of a tendon transplantation or silk ligament insertion.

In pes equinus it is often wise to lengthen the toe flexors in addition to the Achilles tendon. The simplest way to do this is to plunge a small tenotome into the sole of the foot at the base of each proximal phalanx, feel for the tendons with the flat of the blade, and then divide them while the toe is dorsally extended. This will divide both the long and the short flexors.

Knee contractures offer more difficulty than foot deformities, from the fact that in many cases of long duration the leg cannot be straightened without endangering the vessels and nerves. If circumstances will not permit the gradual correction of the deformity, it becomes necessary to shorten the femur. Since we desire a movable joint, it is not wise to resect the articular surface. A section of the femur can be removed just above the epiphysis, and the epiphysis moved upward and reattached to the shaft. This operation will be found of service in other conditions than anterior poliomyelitis, and has the advantage of sparing the articulation, while affording any desired shortening of the femur.

Old contractures around the hip are most frequently those of flexion and abduction. These may require radical operations. The tensor fasciae latae, the rectus femoris and sometimes the iliopsoas must be cut by open incision. If adduction be present, subcutaneous myotomy and forcible stretching will generally give satisfaction.

The deformities of the spine cannot at present be benefited by operation, and can be treated only by forcible correction and retention in molds or braces. Abbott's method of correction is of considerable aid.

I now come to the problem of retaining permanently the correction already attained. It is a matter of everyday experience that the simple correction of the deformities due to infantile paralysis does not affect a permanent result. No matter how thoroughly the tenotomies and redressments are done, no matter how long the correction is maintained by apparatus, relapse will surely occur when the apparatus is removed. In this particular a paralytic club-foot, for example, differs intrinsically and radically from the ordinary congenital club-foot. In the latter, the congenital variety, redressment, tenotomies and retention in plaster casts or braces will effect a permanent cure in a reasonably short time. In a paralytic club-foot of precisely the same general appearance, the same treatment will be effectual only while the casts or

braces are being used. Almost immediately after the apparatus is abandoned the foot will begin to relapse into its previous deformity. Unless we are willing to condemn the patient to a life of constant brace-wearing, we must provide active or passive antagonists to prevent the healthy muscles from pulling the limb toward themselves.

TENDON TRANSPLANTATION

When enough muscles remain unparalyzed, tendon or muscle transplantation will give excellent results if properly performed.

The two principal methods to be considered are those advocated respectively by Vulpius of Heidelberg and Lange of Munich.

In the Vulpius method, the entire healthy tendon, or a portion of it which has been partially split off from it, is sutured to the tendon or muscle which it is intended to strengthen. This method and its modifications have been so extensively used by Vulpius and his followers that there would seem to be little doubt of its efficacy. In my experience, however, it has been found of value in only a limited field. It is useful, particularly in the arm and forearm, and in supplying power to the flexors and extensors of the toes, but when used where a considerable strain is to be thrown on it, as in the tibial or peroneal muscles, it shows a tendency to lose its efficiency. This may be due to the stretching of the paralyzed tendon, but in many cases cannot be referred to any definite cause. The operation is technically easier than the method of Lange, but it is not so certain in its results.

After a considerable experience with the method of Vulpius, I began, some years ago, to use the periosteal implantation of Lange. This gave satisfaction in many of the cases in which tendons were transplanted, but proved not strong enough for the silk suspension cords or ligaments used in cases of drop-foot. In a number of instances a gradual slackening was noticed in the silk ligaments, which caused an annoying return of the drop-foot position. It was not known just where the weakness lay until a few months ago, when one of my cases seemed to supply a solution. A boy of 7 had been operated on nearly two years ago for paralytic drop-foot. A heavy braided silk cord, size 14, was woven into the periosteum over the base of the first metatarsal and the inner cuneiform, and then carried up under the annular ligament and tied into a hole bored into the tibia. A year ago the foot was found to have dropped again so that it was difficult for the patient to walk. The silk was cut down on and a strong pull was made on it to determine the strength of the attachments. To the operator's surprise, both attachments seemed perfectly firm and strong. The silk had become covered with a dense, glistening covering, which could be readily peeled off. The cord was cut, and tied together again so as to shorten it enough to bring the foot up once more to a right angle with the leg. In spite of this, however, a gradual dropping once more began after the cast was removed, and about three months ago the lower end of the silk was dissected out. The loop of silk which had been woven into the periosteum was found to be nearly 1½ inches from the place in which it had originally been inserted. There was a strong fibrous band from the loop of the silk to the inner cuneiform bone, evidently the stretched and hypertrophied periosteum which had gradually been pulled up and elongated by the weight of the foot. It looked very much like normal tendon tissue. Sometime before this evidence was obtained, however, I had abandoned the periosteal fixation method in the silk ligament suspensions, and had practiced the insertion of the silk directly through drill-holes bored in the bones of the foot as well as the tibia.

The Codivilla method of nailing the tendons to the bone is not so reliable as the direct suture with silk.

TECHNIC

Since drop-foot is probably the most common deformity due to infantile paralysis, it seems proper to describe in detail the operative procedures for its relief.

When the anterior tibial muscle is the only one paralyzed, the extensor longus hallucis will make a satisfactory substitute. A curved incision is made over the inner border of the foot and the tendon cut opposite the base of the first phalanx. A hole is bored with a 1/16-inch drill through the base of the first metatarsal bone, and a loop of strong silk is passed through by a needle. The end of the tendon is laid in the loop, and the loop and tendon pulled through the bone. The foot is held at a right angle, and the tendon pulled taut. The free end of the tendon is then passed through a slit in the "standing part" of the tendon, and is then itself split and the ends brought around the standing part and sewed with several interrupted fine silk sutures. This firmly anchors the tendon to the bone, and provides a useful extensor for the tarsus. The distal end of the toe extensor can be sewed to the tendon of the second toe to prevent toe-drop.

In cases in which there seems need of a more powerful extensor of the foot, the extensor tendons of the four smaller toes can be braided together and sutured to a loop of silk passed through a hole bored in the fourth or fifth metatarsal bone.

If the toe extensors are paralyzed, the peroneus longus, the tibialis posticus or the toe flexors can be passed through the interosseous space and sewed into the tarsus or metatarsus. The results are seldom entirely satisfactory when tendons are passed through the interosseous space, probably because adhesions are more likely to occur. I have often passed the peroneus longus around in front of the tibia just under the skin, with excellent function, although the dorsal flexion is apt to be combined with outward deviation of the foot. Usually, if possible, the tibialis posticus or a toe flexor should be similarly carried around the tibia, to correct this deviation.

Splitting of the gastrocnemius, in an endeavor to procure a division of function and thus making two separate muscles of the gastrocnemius, has been an entire failure in all of the cases in which I have operated.

When so many muscles are paralyzed that transplantation is not feasible, the foot can be made useful by permanently checking the foot-drop. Several methods may be used, of which arthrodesis is perhaps the best known. I have done about thirty operations of this kind and the results have been far from satisfactory. It should never be done in children under 14 by the ordinary technic, for bony union is very uncertain below this age.

In any case, the feet are nearly always painful for a long time after the operation, and the absence of dorsal flexion causes inconvenience, especially in walking uphill. It is possible that better results may be obtained by cutting a bone-spike from the tibia and driving it upward through a hole bored through the os calcis and the astragalus, and up into the tibia, but I have not as yet used this method. Lexer has reported good results with it.

SILK LIGAMENT SUSPENSION

It is much more satisfactory, and it is easier and safer, to suspend the foot at a right angle by heavy silk cords running from the tibia downward in front of the ankle to the bones of the foot. This operation has been widely used by Bradford, Soutter, Allison and others in this country. When done by the proper technic it affords a strong and painless foot which is held at or near a right angle and is capable of passive dorsal flexion. The operation can be modified to control any lateral deviation, varus or valgus, and by the addition of posterior cords can control calcaneus deformity. I have done a large number of these operations during the last five years, and although by the older methods some of the earlier cases proved disappointing, the present technic can be relied on to give satisfaction.

TECHNIC

A curved incision with its convexity downward is made from just below the scaphoid to the middle of the inner metatarsal bone. The flap is retracted, and the soft tissues are dissected away from the proximal end of the metatarsal bone. A drill-hole is bored in the base of the metatarsal, and through it is passed a braided silk cord, size 12 to 16, previously boiled in a 1:1,000 solution of mercuric chlorid. The cord should be 20 inches long, for easy handling. It is pulled through to its middle, and a loose single overhand knot is tied just above the bone to keep the two strands close together. The ends are then threaded into a long eye in the end of a Bessemer steel wire probe about 3/32 inch in diameter. This probe is stiff enough to stand a considerable strain, but can be bent as desired. The tendon of the tibialis anticus is now exposed at its insertion into the cuneiform and metatarsal, and a small slit is cut in the sheath. The probe, slightly curved toward the end, and carrying the silk, is passed into the tendon-sheath, and is forced gently upward under the annular ligament until it reaches a point on the tibia 2 or 3 inches above the ankle-joint. A curved incision is made over the tibia at this point, and the end of the probe is pushed out through it. This is easily done with the steel probe, but is much more difficult with the ordinary silver or copper probe. The silk is now pulled out of the eye of the probe and clamped with a hemostat for purposes of identification.

A similar operation is now performed on the outer side of the foot, the fifth metatarsal being drilled and threaded with a similar silk cord, which is then passed up the sheath of the peroneus tertius tendon and made to emerge from the tibial incision. A drill-hole is now bored through the crest of the tibia, and one cord of each of the pairs of cords is passed through it by means of a large needle. The pair of cords from the inner side of the foot is now pulled tightly enough to bring the foot to a right angle, and tied with a triple square knot. The outer cords are now tightened enough to bring up the external border of the foot to the same level, and likewise tied. This now holds the foot firmly, and the incisions are closed. It is well to sew the subcutaneous soft tissues over the silk cords as a separate layer, and to suture the skin very carefully. A plaster-of-Paris cast is applied, and removed in about two months, after which there is usually no further need of external support. In cases of marked varus, the silk cords from the outer metatarsal are fastened into the fibula instead of the tibia.

OTHER OPERATIONS

Four cases of pes calcaneus have been treated by lengthening the semitendinosus with heavy silk and inserting the silk into the os calcis. There has been some benefit in all of these cases, and the operation seems worthy of more extended trial.

When the quadratus is paralyzed, and the hamstrings are strong, excellent results can be obtained by transplanting the biceps and semitendinosus forward into the patella. This is one of the most satisfactory operations within the range of tendon transplantation. The two hamstrings must be dissected upward for a long distance through separate incisions, heavy silk cords woven into them, and a wide opening made in the subcutaneous fatty tissue for their passage. The silk cords should be threaded through drill-holes in the patella, the tendons pulled down to the patella, and the cords tied. Several interrupted silk sutures are also used to sew the tendons to the surface of the quadratus. It is not necessary to insert the cords into the tubercle of the tibia.

This operation is also of benefit in some of the cases of spastic paralysis in which undue flexion of the knee is present.

I regard the use of the bichlorid silk as one of the marked advances in this department of surgery, and I feel that great credit is due to Lange for his advocacy of this technic. The silk rarely causes trouble when properly used, and can apparently remain indefinitely in the tissues without losing its strength or acting as a foreign body. So far, it has not seemed necessary to paraffin the silk, although this is advised by Lange.

The use of intra-articular silk ligaments had been practiced by Bartow and Plummer to produce limitation of motion in cases of partial or total paralysis. The cords are passed through the bones and joints in such a way as to make a partial stiffening of the joint. This method deserves trial, but I have not as yet attempted it.

NERVE TRANSPLANTATION

The work of Hans Spitzy in the grafting of nerves seemed to offer new possibilities in the treatment of infantile paralysis. It is obvious that successful nerve-grafting would attack the trouble at almost its very source, and would be far better than any peripheral operations on the muscles or tendons. The method advocated by Spitzy was to make a small slit in the nearest healthy motor nerve of sufficient size, and to implant in this slit the distal end of the paralyzed nerve. The technical difficulties are often not great, and require merely care and precision. About six years ago I operated in nine cases by the method of Spitzy. Seven of these were cases of paralysis of either the external or the internal popliteal nerve as a whole. In another case the musculocutaneous was grafted into the anterior tibial, and in the last-named case the musculocutaneous nerve of the arm was inserted into the median. None of these operations was followed by any actual nerve regeneration that could be demonstrated.

These results seemed so discouraging that I have so far made no more attempts of this kind.

Vulpius and Stoffel report some rather encouraging results by a highly interesting and complicated method by which the various nerve-fibers are differentiated at operation with electric stimulation. This would afford an opportunity for the end-to-end anastomosis of suitable nerves, which would be more logical than Spitzy's technic. Their recommendation to perform such operations within six months after the attack, however, should not be followed.

CONCLUSION

I believe that far too little surgery is generally done in cases of infantile paralysis, and that nearly all cases can be benefited by properly planned and properly executed operations.

In a single paper of this length the subject can be only sketched lightly, and the intention has been to call attention to a few of the more useful operations which have stood the test of time and experience.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. E. A. RICH, Tacoma, Wash: For the last few years I have been much interested in this line of work and wish to attest its efficacy. If judgment is used in the diagnosis of the pathology present and in the selection of the proper corrective procedure, and if the work indicated is skilfully performed, the condition of the limb should be bettered. In some patients not suffering extensive muscular losses, the restorations after wise surgical measures are often marvelous. While the leg cannot be made so large or so beautiful as the normal leg it is always possible to restore all or part of the function.

DR. F. J. GAENSLEN, Milwaukee, Wis.: I was interested to hear Dr. Ryerson's frank report regarding his experience with neuroplasty. When abroad last summer, I paid particular attention to this procedure in infantile paralysis. Dr. Spitzi of Graz operated on one patient while I was there, but unfortunately I saw none of his late results. Dr. Putti of Bologna said that Spitzi had operated on three patients for Dr. Codivilla in Bologna, and that in none was there any improvement to be detected by careful examination at the end of two years. There seems to be a lack of interest in neuroplastic methods in recent years. I have had only a limited experience with silk ligatures for drop-foot, etc., but cases of this kind that I have had have been satisfactory. I used bichlorid silk. In one case the large knot caused a pressure sore on the outside of the tarsal bones. That granulated over, however, and gave no further trouble.

DR. ROLAND MEISENBACH, Buffalo, N. Y.: Dr. Ryerson's excellent work in this connection has brought many ideas to my mind. The use of silk has been well established for tying purposes. In employing the silk for the purpose of substituting tendons or ligaments, we should consider carefully whether we have to deal with an actively growing epiphysis, as in children, or not. This does not hold good so much in drop-foot as in deformities in other parts of the body, for instance, the knee-joint. Implanting silk ligaments may be temporizing only.

Dr. Ryerson made the statement that silk remains indefinitely in the tissues. I cannot altogether agree with him in this regard. Several years ago I had occasion to make some experiments in regard to silk and catgut in tissue. The cross section showed that the catgut readily absorbed. It required for silk, however, a longer time. The first process was to bring to it many leukocytes, and then slow absorption took place. I can readily understand what becomes of the silk in cross section, but I should like to know Dr. Ryerson's theory in regard to the lengthening of these fibrous bands or ligaments, as the child grows older. Silk is unelastic, and I think that it makes little difference whether one uses braided or twisted silk. Lange, I think, uses braided silk. I have been employing silk substitutes for tendons in selected cases only, as I do not believe that it is the ideal method of procedure in many cases of infantile paralysis.

DR. NATHANIEL ALLISON, St. Louis: Dr. Meisenbach has brought up the question that interested me a great deal in doing this work; that is, the ultimate fate of these silk strands and ligaments. I undertook to find out primarily what took place by introducing silk strands into the tendon-sheaths of dogs. I had one animal that carried such a strand in his tendo Achillis sheath for five months. On section of that tendon, I found that the tendon-sheath had proliferated to a marked degree and that the silk was infiltrated with cellular elements to a great extent. So it seems to me that this might answer, in a way, the question asked by Dr. Meisenbach concerning the fate of these ligaments. This was braided silk. If the process should go on and the silk become absorbed, it seems probable that a fibrous band would be left, which might be serviceable as a ligament. That is my idea, at least.

DR. EDWIN W. RYERSON, Chicago: I said that the silk apparently remains indefinitely in the tissues. That does not mean much, because I have only about five years to report on in my cases. In all of them that I have been able to trace, in which the operation took place five years ago, the silk is still there. There has been a marked increase in its size, which is, of course, due to the connective tissue forming around it. It has, so far, shown no signs of being absorbed.

Many operators use twisted silk instead of braided silk, but it is not so strong, compact or rigid. I have seen no specimens presented to show the actual absorption of the silk, and I do not believe that it will occur. I do, however, believe that in some cases the silk may be worn through after a time; but you have seen the picture of the woman in whom it has been in place for two years, with a great deal of strain on it. In this case, four large No. 16 cords were used, and they are apparently still there.

I think that Dr. Meisenbach wanted to know what happens when the leg grows and the silk does not. Of course, the silk does not change its length, and I have been interested in speculating on the ultimate result in such cases. As you know, the majority of growth in the tibia—three-fourths of it—takes place at the upper end. I do not place the silk much above the lower epiphysis, where only one-fourth of the growth occurs. The growth would be likely to cock the foot up in the air, but this has not as yet happened in any of my cases. In some cases in which periosteal implantation was done, the foot has dropped down on account of periosteal stretching. If the silk ligaments should become too short, one might do a tenotomy and lengthen them, or put in a lengthening piece of silk.

If the subcutaneous tissues are sewed thickly over the site of the knots, they will seldom give any trouble. Of several hundred cases, I have had the silk give trouble in but three. In two of these, the silk came out. This was due to a stitch-abscess. In the other, there was a deep abscess and a small piece of silk came out. These were tendon transplantation cases. In only one case has a silk ligament given any trouble.

ACIDOSIS AS A COMPLICATION AFTER SURGICAL OPERATIONS *

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No length of training in surgical technic, no amount of experience in the operating-room, can make a competent surgeon of any man who is poorly equipped in the theory and practice of general medicine. The practitioner of surgery who loses interest in the problems of internal medicine becomes in time but little better than an overrated and overpaid mechanic plus a deficient surgical judgment and minus a surgical conscience; yet many of our surgeons of great note and most of the lesser lights struggling for recognition actually boast of their ignorance of, and lack of interest in, any branch of medicine outside the immediate scope of their special work.

It is small wonder, then, that the men engaged in other lines of work, particularly the neurologists, complain that most of the so-called neurasthenic patients they are called on to treat present abdomens decorated with scars marking the sites of operations that have

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made worse the conditions they were designed to relieve. Unwarranted operations, with the resulting cost in suffering and heart-breaking disappointment and the discredit cast on the profession, are bad enough, but there is yet another and a graver indictment against the surgeon who through ignorance or carelessness fails to study his patients before taking them to the operating-table. I refer to his failure to recognize in a large percentage of chronic cases certain symptoms that bear no close relationship to the conditions for which he proposes to operate, but are veritable danger-signals warning him of the existence of some more or less grave constitutional state, some serious disturbance of metabolism, which for the time at least renders the patient an extra hazardous risk for a general anesthetic, and yet with proper attention may be cleared up and a serious danger averted.

The handling of a surgical case may arbitrarily be divided into:

1. The examination and diagnosis.
2. Preparation for the operation.
3. The operation.
4. The postoperative care.

The examination and diagnosis, requiring in many cases by far the greatest amount of learning and skill, are often treated in a perfunctory way. The case not infrequently comes into the surgeon's hands with the diagnosis already made and the operation planned by the family physician, who may or may not be a competent man. The surgeon too often accepts this diagnosis almost without question and merely confirms it with a few leading questions covering history of the local condition for which operation is proposed, and then after a limited physical examination and a partial urinalysis to determine the specific gravity and the presence or absence of albumin and sugar, directs that the patient be given the "usual preparation for operation," meaning the routine in vogue at the hospital and applicable to all cases without special reference to the peculiar needs of any one case.

The operation receives the only serious attention given by the surgeon himself, and fortunately the modern hospital technic and skilled assistants and nurses render this work safe as far as infection, hemorrhage and shock under ordinary circumstances are concerned. The hospital routine and skilled nursing furnishes all the after-care needed for ordinary cases. In any event, it is all that the patients are likely to receive. If at the operation the diagnosis is found to be correct, and, the patient's condition is in other respects satisfactory, the result will, of course, be all that could be desired. If, however, an innocent appendix has been removed, a harmless gall-bladder drained, a gastro-enterostomy done for chronic reflex pyloric spasm, or an unoffending uterus or a harmless movable kidney fixed in a position that will give rise to real symptoms instead of imaginary ones, as before the operation, surgery has merely been discredited once more, and the patient and the patient's friends disappointed and subjected to needless expense and heartaches.

This certainly is not to be desired and the surgeon deserves the censure of all right-minded persons. If he deserves censure for his carelessness in failing to exhaust every available means to arrive at a correct diagnosis before subjecting the patient to the fearful ordeal of a surgical operation, what are we to say of his failure to note in his patient's history and present condition a symptom-complex which could not possibly be accounted for by the local conditions, which clearly points to some perverted state of metabolism, and may constitute a serious menace to the chances for an early recovery, if not, indeed, a danger to life? Suppose, for example, that the patient has been starved by an improperly balanced diet, deficient in carbohydrates and consisting chiefly of proteins; has been starved and exhausted by prolonged diarrhea or vomiting, or has been a victim of so-called food terror in which he or she voluntarily refrains from taking proper food in sufficient amounts; or suppose that the patient is suffering from some toxemia, the result, perhaps, of chronic intestinal indigestion with constipation; the prolonged ingestion of some poison such as alcohol or tobacco, or drugs such as the salicylates, or is the victim of a toxemia resulting from some obscure organic disease as of the liver, pancreas or kidneys. The patient, let us say, is a young woman seeking relief for a chronic appendicitis. Suppose we confirm the diagnosis and advise operation, but fail to note that:

1. She has an abnormal dread of the operation and seems terror-stricken to an unusual and unaccountable degree.

2. She suffers from tachycardia and a tendency to dyspnea.

3. She complains of frequent headaches, vertigo and great mental depression.

4. Her breath has a peculiar sweetish odor, suggesting the odor of rotten apples.

5. Her extreme and peculiar nervousness has been sufficient to cause her family some anxiety as to her mental state.

6. The patient's urine is loaded with acetone, and therefore perhaps also with diacetic acid and beta-oxybutyric acid.

Failing to be warned, the surgeon allows this patient to go to the operating-table after the usual routine hospital preparation. The following account of what happens is familiar to us all.

1. The patient resists the anesthetic after the manner common only in such cases, and in alcoholics.

2. She vomits incessantly and the nausea persists for several days.

3. The pulse becomes rapid and often irregular.

4. She remains drowsy and stupid for an unusually long time after the anesthetic is withdrawn.

5. Her temperature may shoot up without apparent cause.

6. She is nervous and restless and suffers intensely, but does not tolerate an opiate well.

7. After a prolonged and anxiously watched convalescence the patient finally recovers.

This is the usual history, but some of these patients are not so fortunate. All the symptoms are much exaggerated. The patient does not completely regain consciousness, but after ten or twenty hours of persistent vomiting, rapid and irregular heart-action, a rising temperature, wild delirium or a more or less profound stupor, she dies.

A very little knowledge of internal medicine places us in possession of the following all-important facts:

1. These patients are the victims of some perversion of metabolism, associated with diminished alkalinity of the blood and the appearance in the urine of the acetone bodies.

2. They do not tolerate any general anesthetic, and most of them do not even tolerate opium or any other narcotic drug.

3. Large quantities of water, preferably carbonated, a diet of starches and sugars, preferably 5 or 6 ounces

of oatmeal with lactose daily, with alkaline laxatives and sufficient alkalies, such as sodium citrate or bicarbonate, to keep the urine neutral for four or five days, and frequent warm baths with friction of the skin will cause most or all of the symptoms to disappear in an astonishingly short time.

4. The condition will recur to some extent on very slight provocation, particularly after a general anesthetic, but can usually be forestalled by the use of alkalies and water by the mouth, by the bowel, or, in extreme cases, in a vein.

The significance of the acetone bodies in the urine has long been a matter of debate. It was at first thought that they were derived from glucose because of their appearance in diabetes. Then the origin was at a later date ascribed to the proteins, but according to A. R. Short of Bristol University, who has recently summed up all the available evidence, it is now definitely established that they are the result of a peculiar abnormal breaking down of fats. The physiologic process of dealing with fat is to resolve it into carbon dioxid and water with the liberation of heat; but when for any reason the tissues are unable to obtain sugar from the blood, fat is broken down with the production first of beta-oxybutyric acid, then diacetic acid and finally acetone. The relative amounts of these acids are dependent on the rapidity with which the breaking down of fats occurs. R. C. Cabot says that the appearance of the acetone bodies is due to a diminished utilization of carbohydrates because *(a)* sufficient carbohydrates are not ingested, (*b*) the sugar is not absorbed, or (*c*) the sugar is not assimilated.

The rôle played by the liver is not clearly understood, and it has not been demonstrated according to some authorities whether the fatty degeneration found in the liver, kidneys and other organs after death in these cases is the cause or the result of the acidosis. Apparently the acetone bodies are not in themselves poisons except in enormous doses. It would seem that the evil done is not due to any particular acid but rather to the reduction in the alkalinity of the blood. In the condition of abnormal catabolism of fats with the production of the beta-oxybutyric acid, diacetic acid and acetone, the body first relies on the reserves of sodium and potassium, but chiefly on the large quantities of ammonia, the result of the normal metabolism of the proteins. The ammonia combines with the beta-oxybutyric and diacetic acids and does not become converted into urea by the liver. Finally the supply of ammonia fails and the alkalinity of the blood falls, and a fatal termination results unless something is done at once to restore, at least in part, the normal reaction.

After all, we are not concerned with the many theories seeking to account for the appearance of the acetone bodies in the urine; but the fact that their appearance does indicate a serious perversion of the patient's metabolism and strongly contra-indicates the administration of a general anesthetic, until by appropriate treatment the patient becomes able to tolerate the anesthetic and to stand the operation, is of the greatest importance.

Every surgeon, of course, knows that certain nervous symptoms, such as abnormal fear of an operation, headache, a rapid pulse and a tendency to nausea usually indicate that the patient will not tolerate the anesthetic well and will probably suffer much from nausea and vomiting, restlessness and an unaccountable rise in temperature during the convalescence. My attention was first directed to the possibility of a fatal issue in exaggerated cases of this type about six years ago, when called in the following case:

CASE 1.—A boy, aged 16, had been operated on three years previously for chronic appendicitis. He had suffered much from headaches, extreme nervousness and fear of the operation. The anesthetic given was chloroform. During the anesthesia his excitement was extreme and he had to be held on the table. He failed to react promptly and remained in a semistupor, with a rapid, irregular pulse and persistent nausea and vomiting. A specimen of urine removed by catheter contained some albumin and casts and was extremely acid in reaction. (No test was made for the acetone bodies.) In spite of the odor of the anesthetic this boy's breath had the peculiar sweetish rotten-apple odor characteristic of acetonemia. His condition went from bad to worse and at the end of eighteen hours he died. At the time I did not recognize the nature of the trouble.

CASE 2.—A year later a second case of the kind occurred. The patient, a nervous, so-called hysteric girl, aged 18, whose history showed that she had suffered much from vertigo and from persistent neuralgic headaches and from an irritable bladder, had also had an interval appendectomy. She had often had vomiting spells and had been told that she was a victim of the uric acid diathesis. She was constipated, but suffered from frequent attacks of diarrhea. The urine before the operation did not contain albumin or sugar, but was very acid.

The anesthetic in this case was ether and a large amount had to be administered because of the difficulty in keeping the patient relaxed. She left the table with a rapid, thready pulse, persistent vomiting and dyspnea. In a few hours her temperature had reached 104 by rectum. The urine was heavily charged with acetone, and the odor could be easily detected on the breath. The urine also contained albumin and casts. She died in twelve hours.

CASE 3.—A woman aged 24, with a history of chronic colitis and periods of obstinate constipation, with tenderness and gurgling in the right inguinal region, had been advised a year before to undergo operation for chronic appendicitis. Two weeks before the operation she consulted her family physician for relief from persistent headache, general muscular soreness, mental depression and occasional fainting spells. At the time the tongue was coated, the breath bad and the urine extremely acid and containing indican. Nitrous oxid and oxygen was the anesthetic and no ether at all was given. Once the anesthetic had to be withdrawn because of the danger of respiratory failure, and she never was completely relaxed. She failed to completely regain consciousness, and developed persistent vomiting, an intermittent, irregular and rapid pulse, marked dyspnea and a rapid rise in temperature to 105 in less than five hours after the operation. The breath was characteristic and unmistakable, and the urine, which was secreted at the rate of about 2 ounces per hour, was heavily charged with acetone, but no albumin or casts, and the specific gravity was low. She was given alkalies by the bowel and in a vein, but without avail. Death occurred in about twenty hours.

CASE 4.—Mrs. ———, aged 38, above the average height, the sister of a well-known physician, sought relief for a large uterine fibroid which for about a year had caused a considerable loss of blood and much pain. For a number of weeks she had lived on an almost carbohydrate-free diet, a part of the time living on meat extract broths. During this time she had developed a chain of very distressing nervous symptoms, most prominent of which were vertigo attacks, great excitability, with a pronounced muscular tremor on slight exertion, and frequent headaches, with occasional attacks of persistent vomiting lasting as much as twenty-four hours. I saw her first in the afternoon preceding the day set for the operation, and on entering the room was immediately struck with the pronounced odor of acetone. The patient was propped up on pillows, saying that she could not get her breath easily when lying down. The pulse was rapid and she was much excited. She said that she had not slept any

on account of nervousness for three nights and felt a firm conviction that she would die. The urine examination showed an enormous amount of acetone, but no albumin or sugar. Operation was deferred, and the patient, under the care of Drs. D. M. Stone and B. F. Stout, was kept for a week on a diet of 6 ounces of oatmeal with milk, sugar and cream daily. She was made to drink large quantities of carbonated water, and had colon irrigations twice daily with an ounce to the quart of sodium bicarbonate and from 3 to 5 drams daily of sodium citrate by mouth. On the morning of the fourth day the patient stated that she had had her first restful night's sleep in six months, that her headaches and nervousness had entirely disappeared, and that she did not dread the operation any longer. She was now quite cheerful. The change in her condition was indeed remarkable. The pinched, anxious, haggard expression had disappeared and she seemed quiet and relaxed and rested. On this day there was but a trace of acetone, and the urine was alkaline in reaction. Three days later she was operated on, her pulse having been reduced in the meantime from 120 to 78 when at rest. Ether was given. She left the table in good condition, but at the end of six hours became restless, and began to vomit and to suffer from dyspnea. The urine again contained acetone and some albumin, with a few granular casts. The stomach was washed out with a strong sodium bicarbonate solution and she was placed on the Murphy drop with sodium bicarbonate solution, an ounce to a quart. In a few hours her condition was again normal. She made a good recovery, but three months later called at my office complaining again of headaches and nervousness, and confessed that she had failed to follow directions with reference to diet, etc. The alkalies, diet, warm bathing and alkaline irrigation soon restored her to normal.

CASE 5.—Miss E., a trained nurse, aged 26, gave a history of having had appendicitis when a child and having suffered from obstinate constipation, a coated tongue and flatulency and headaches ever since. During the past year she had had a number of attacks of intestinal colic, always accompanied with nausea and vomiting and great nervousness. Recently she had had several severe attacks of pain in the right side with rigidity, vomiting, extreme prostration and a fear of impending death. This girl had always been unwise in the selection of her diet. She drank very little water and her diet consisted chiefly of proteins. The urine contained indican and acetone and was very acid. She was prepared for the operation with a view to eliminating the danger of acetonemia and stood the operation well, except that she resisted the anesthetic very much and could not be relaxed. In spite of our efforts she had four days and nights of intense suffering from pain, restlessness, vomiting dyspnea, headache and abdominal distention. The ascending colon had been stripped of a very extensive pericolic veil, but this could not account for the pain and distention. She finally recovered after a rather tedious convalescence, during which colon irrigations with a soda solution played a prominent part in the treatment.

I have collected the records of thirty-four cases, in which a fatal issue resulted in seven. The cases reported, however, are typical and I will not lengthen the paper by detailed reference to the others.

CONCLUSIONS

Because of a marked reduction in the normal alkalinity of the blood, the result of some perversion of metabolism, many of the patients requiring surgical operations are unfit subjects for general anesthesia and the ordeal of an operation. The warning signs in such cases are:

1. A history of unaccountable headaches, vertigo, attacks of dyspnea, occasional nausea or vomiting, an unreasonable dread of the operation, tachycardia and other nervous symptoms.

2. A peculiar sweetish odor to the breath, suggesting the odor of rotten apples. In some cases this is marked and unmistakable.

3. The presence in the urine of the acetone bodies.

To disregard these warning signs is to subject the patient at best to (1) an anesthesia requiring large amounts of ether or chloroform, and attended with struggling and great rigidity of the muscles, difficult breathing, a rapid pulse and nausea, followed by a prolonged and nerve-racking convalescence with persistent vomiting, restlessness, dyspnea, a rise in temperature and much suffering, or, if less fortunate, to (2) the certainty of a fatal termination, preceded by nausea, air-hunger, persistent vomiting, a rise in temperature, great nervousness, followed by coma and death in from ten hours to two or three days.

A recognition of acidosis in time followed by the institution of such measures as a carbohydrate diet of, say, from 6 to 8 ounces of oatmeal and cream with lactose, large quantities of carbonated alkaline water, colon flushings with an alkaline solution and the internal administration daily of 3 or 4 drams of sodium bicarbonate or sodium citrate by mouth will be followed by a rapid disappearance of all or most of the unfavorable symptoms, and the patient will be rendered for the time being at least a safe subject for the anesthetic and the operation.

Hicks Building.

VON MIKULICZ' DISEASE—FURTHER STUDIES

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Von Mikulicz' disease is a chronic, indolent, symmetric enlargement of one or more of the salivary or lacrimal glands, which is non-painful and which von Mikulicz could not classify under any of the diseases heretofore described. The first case of this nature was presented by von Mikulicz,[1] Jan. 23, 1888, before the Verein für wissenshaftliche Heilkunde at Königsberg. In 1894 von Mikulicz first described what he thought was a distinct and typical well-defined heretofore undescribed disease.

The following case is an example of his syndrome:

History.—M. B., a man, aged 22, feeder by occupation, was born in the United States of parents from Galicia, Austria, who have been married for thirty years and have ten children, all living and well with the exception of one who died from an infectious disease in childhood. Both parents are alive and enjoy perfect health. The patient, whom I saw March 4, 1912, does not drink or smoke; he is very nervous and consumes a great deal of coffee. At the age of 2 he became blind and remained so until 7 or 8 years old. Vision is poor now. At the age of 3 he had infected cervical lymph-nodes, which were lanced. He has always been troubled with nasal catarrh and cannot breathe through the nose. For the last four years he has been having a hemorrhage [from lung (?)] once a year. He has stomach trouble and is constipated. About five years ago he had skin disease associated with constant itching. For the last six years he has been ruptured. He has had discharge from the left ear for years. The patient had a soft chancre four years ago which healed without treatment; he has not taken any internal treatment; he never had gonorrhea. Three years ago he noticed a painless swelling appear over the right submaxillary region. About two years later the left submaxillary and the right parotid glands became enlarged.

1. Von Mikulicz: Berl. klin. Wchnschr., 1888.

These swellings are absolutely painless and fluctuate in size, becoming larger and then smaller at times, apparently without any cause. The patient has dryness of mouth, and coughs and expectorates slightly. He feels perfectly well otherwise.

Examination.—Swellings: Both submaxillary glands are smooth, symmetrically enlarged to the size of a hen's egg, are freely movable and the skin over the glands is also freely movable. Right parotid gland enlarged to the size of a hen's egg and has the same characteristics as the submaxillaries. The swellings are firm in consistency, not tender, and show no evidence of inflammation or fluctuation. The remaining salivary, as well as lacrimal glands, are perfectly normal.

General: Patient is well built and nourished, and the mucous membranes are not pale. Posterior cervical, epitrochlear, axillary and inguinal lymph-nodes are palpable. Six scars on the neck mark the location of the before-mentioned operation. The thyroid gland on the left side is somewhat enlarged, and is smooth, soft and homogeneous. The tibia is irregular in outline and contains pigmented scars. There is also a pigmented scar over the left patella.

Mouth, Nose and Ears: Patient breathes through the mouth; cannot breathe through nose. Tongue is coated and dry; tonsils enlarged and throat is red and congested. He has a very narrow and high-arched palate. There is more breathing-space in the right nasal cavity than on the left side. He has adenoids and hypertrophied turbinates, is hard of hearing, and the left ear is discharging.

Heart: Negative.

Lungs: Dulness of right and left apices. Occasional subcrepitant râle and roughened breathing over left apex.

Abdomen: Liver and spleen not enlarged. No masses palpable and no resistance can be felt.

The temperature, pulse and respirations are practically normal.

Treatment and Course.—Dietetic and hygienic measures were adopted, with Fowler's solution and potassium iodid. May 5, 1912, the patient suddenly began to have hemorrhages from the lung, altogether twenty-four in number. He went to Denver, stayed two weeks and then went to Omaha, where he stayed one week and returned to New York. He was rapidly failing, when at this time he was advised by an old woman whose husband had had what had been pronounced as fatal tuberculosis and had cured himself by drinking his own urine. Patient has been drinking daily, since Aug. 15, 1912, from three to five glasses of urine, immediately after voiding. At first he used to have abdominal cramps after drinking urine, but now he feels no pain and in fact likes the beverage. Since he began this treatment the patient has felt very much improved. Not only have the salivary glandular swellings diminished in size or returned completely to normal, but his general health has greatly improved. He looks very much better and has gained in weight. His appetite has improved, he has lost his night sweats, and coughs considerably less. His hearing has improved, although his ears discharge just as much as previously. The nasal discharge is considerably less. Tubercle bacilli are present in the sputum.

April 6, 1913: The parotid glands on both sides are normal; no swelling can be felt on the right side. The submaxillary glands on the left side are the size of a hazelnut. On the right side the gland is divided into two parts, is round, smooth and movable, and the skin over it is movable; one is the size of a hazelnut, the other the size of a pea. The lacrimal glands are not involved.

General: The patient still breathes through the mouth; he cannot breathe through the nose. The tongue is coated with grayish-white fur; the tonsils are red and hypertrophied. There is a grayish-green membrane on the posterior pharynx. The lymph-nodes are palpable.

Chest: The supraclavicular and infraclavicular fossa are deeper on the left side. The left clavicle is more prominent. There is dulness over the right apex and left upper lung. There is prolonged and roughened expiration over the right apex. Roughened breathing and suberepitant and crepitant râles are present in the left upper lobe of the lung.

The abdominal organs are negative. The weight of the patient is 125 pounds.

BLOOD EXAMINATION

	March 4, 1912.	April 4, 1913.
White blood-cells, total	.....	21,500
Polymorphonuclears	80 per cent.	76 per cent.
Eosinophils	0 per cent.	7 per cent.
Lymphocytes (small)	18 per cent.	21 per cent.
Mononuclears	1.5 per cent.	.....
Mononuclears and transitionals	.....	1.5 per cent.
Mast-cells	0.5 per cent.	0.5 per cent.
Red cells, total	.....	9,100,000
Anisocytosis	none.	none.
Poikilocytosis	none.	none.
Polychromatophilia	none.	none.

Urine Examinations: Repeated urine examinations yielded but negative results. The cytology as well as the bacteriology was negative. Repeated examinations for tubercle bacilli proved negative.

Examination of Saliva: Appearance, cloudy; sediment, moderate; reaction, alkaline to litmus; albumin, none; potassium sulphocyanid, none; chlorids, present; nitrates, present; carbonates, none; ferments: all tests showed that the saliva was capable of changing starch into sugar. Microscopic: Numerous bacilli, spirilla and cocci, squamous epithelium, débris, and starch granules.

Wassermann reaction of blood, negative.

CONSIDERATION OF VON MIKULICZ' DISEASE

Location.—In von Mikulicz' classical case not only were all the salivary glands involved but also both of the lacrimals. In January, 1911, I[2] presented before the Brooklyn Pathological Society, a case of von Mikulicz' disease in which only both parotids were involved. Similar cases were reported by Lafolley,[3] Battle,[4] Kummel,[5] Quincke,[6] von Reuss,[7] Minelli[8] and Apert.[9] Involvement of the submaxillaries alone were reported by Kummel, while that of the sublingual alone has occurred but once (Reinbach[10]). Involvement of one of the pair of glands has been reported in the parotid by Kuttner[11] and in the lacrimal by Berlin[12] and Coppez.[13]

Pathology.—Pathologically these cases differ a great deal. In general the lesions may be divided into two classes. In one type of cases the chronic inflammatory changes are conspicuous; in the other type the lymph-adenoid hyperplasia.

The majority of writers have found a diffuse round-cell or lymphocytic infiltration, and isolated collections of lymph-nodules embedded in the parotid gland. These nodules are circumscribed and resemble lymph-follicles and are irregularly distributed in the tumor. There is abundant vascular supply, the walls of which show a distinct thickening and sometimes hyaline and amyloid degeneration (Kirschbaumer[14] and Reymond[15]). The capillaries may show a proliferation of the interstitial and connective tissue with resulting sclerosis (Zinn, Kirschbaumer[14] and Swegireff[16]). The gland proper plays a passive rôle, undergoing secondary atrophy and degeneration as a result of compression, until it may completely disappear (von Mikulicz, Minelli,[8] and Swegireff[16]). These authors believe that the process originates

2. Lintz, William: New York State Jour. Med., February, 1911.
3. Lafolley: Thèse de Paris, 1894.
4. Battle: Tr. Clin. Soc., London, 1895.
5. Kummel: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1897, ii.
6. Quincke: München. med. Wchnschr., 1906, i.
7. Von Reuss: Mitt. d. Gesellsch. f. inn. Med. u. Kinderh., 1906.
8. Minelli: Virchows Arch. f. path. Anat., 1906, clxxxv.
9. Apert: Bull. et mém. Soc. méd. d'hôp. de Paris, 1908, Series 3, p. 155.
10. Reinbach: Beitr. z. Chir., 1897, xviii.
11. Kuttner: Beitr. z. Chir., 1896, xv.
12. Berlin: Würtemberg Korrespondenzbl., 1870.
13. Coppez: Arch. d'opht., 1903, xxiii.
14. Kirschbaumer: Arch. Ophth., 1895, xii, No. 3.
15. Reymond: Ann. di Ottal., 1883.
16. Swegireff: Klin. Monatsbl. f. Augenh., 1906, supplement.

in the connective tissue and that the gland element plays a passive rôle. Hirsch,[17] Haeckel,[18] Kuttner[11] and a few others believe that the process originates in the epithelium of the gland proper, which undergoes primary degeneration as a result of the action of some toxic agent, which perhaps reaches the epithelium through the duct of the gland, resulting in a secondary proliferation of the connective tissue. Hirsch[17] has observed independent degeneration of the gland parenchyma in all stages of the disease, affecting even the lobules which were not related to the round-cell infiltration. Haeckel[18] saw in some cases a transition of masses of round cells into connective tissue. A beginning degeneration of the gland epithelium occurred when the gland seemed otherwise normal and free from round-cell infiltration and new connective tissue.

A certain number of so-called "leukemic cases" have been reported; here the usual pathologic anatomic picture is presented, namely, a nodular or diffuse formation of atypical lymphoid tissue. Warthin asserts that so far as the essential pathology is concerned no histologic difference can be discovered between the two types (leukemic and aleukemic), and that one may pass into the other.

Giant-cells, eosinophils and few epithelial cells have been found in my case previously described, as well as by Tietze,[19] Kummel[5] (Case 25), Stowar,[20] Baas,[21] Minelli,[8] Napp,[22] Kulbs[23] and others.

General.—This disease affects both sexes alike and occurs between the ages of 4 and 70. The duration of an attack varies from two months to twelve years and upward. Xerostoma is, as a rule, a prominent symptom, and it may seriously interfere with mastication or deglutition, depending on the degree of devolvement of the salivary glands. In some cases not only are the salivary glands mentioned before involved, but also the secondary salivary glands of the hard palate, and under surface of the tip of the tongue (Blandin-Nuhn glands) and of the lateral aspect of the posterior portion of the tongue (Weber's glands), are affected. When there is involvement of the lacrimal glands there is ptosis and exophthalmos with hardly any mechanical interference with vision. Lacrimation is usually only an early symptom. The process may be reversed involving first the lacrimal and then the salivary glands, or it may involve one without involving the other, or involve but one gland or any combination of glands. There is none or but slight enlargement of the lymph-nodes. The spleen is not enlarged. Hypertrophied tonsils and adenoids infrequently occur. In most of the cases the blood-picture as a rule is normal. Yet quite a good many authors report cases in which involvement of the hemopoietic system did occur, developing ultimately in typical cases of leukemia and pseudoleukemia (Stock,[24] Senator,[25] Marcuse,[26] Osler,[27] Dunn,[28] Cutler,[29] Gallasch[30] and Bock[31]). The tumors may temporarily or even permanently subside during the course of an acute infection such as general peritonitis, pneumonia, erysipelas, acute pleurisy with effusion and cholera (von Mikulicz, Kummel,[5] Quincke[6] and Zirm, Osler and Delens). After complete extirpation of the involved glands there is invariably no tendency toward recurrence. My first patient is perfectly well to-day, three years after operation. The course of the disease is exceedingly chronic, and not infrequently a complete cure may be obtained spontaneously or by therapeutic measures. Of especial value in this disease are arsenic, mercury, iodids and the Roentgen ray. Of itself the disease is not fatal and has no tendency to shorten life.

Pathogenesis and Etiology.—There is no uniform agreement as to how and what is the cause of the disease. Most men believe that the disease is caused by an infection from the buccal or conjunctival bacteria or some parasitic process in the widest sense of the term, though no specific bacteria have been demonstrated in these cases. The infection, when it arises from the conjunctiva, passes thence to the lacrimal gland and by the lacrimal duct to the buccal mucous membrane and the salivary glands, owing to the proximity of both in the nasopharynx. In many cases there was a preexisting disease of the conjunctival mucous membrane (Becker, von Mikulicz, Adler,[32] Haltenhoff[33] and my[2] first case). This patient gives a history of blindness at the age of 3 which lasted for three or four years. Kummel[6] considers that the first conjunctival and second salivary groups of cases depend on the different entrance points.

Ziegler[34] believes that the condition is due to toxic fluids that are chemically irritating, which are probably absorbed from the accessory sinuses (chiefly antrum) and transmitted through the lymphatic capillaries to these contiguous glands. This patient has nasal catarrh and respiratory obstruction.

Apert[9] believes that the condition is caused by hypothyroidism. Some believe that the disease is caused by glandular irritation from some toxic agent in the blood or lymph-stream, causing lymphatic hyperplasia. Others believe that it is of idiopathic origin. Berlin,[12] Arnold, Minelli,[8] Tietze[19] and others compare the process to hypertrophy of the tonsils and adenoids, the hypertrophy taking place from preformed lymphatic tissue in the orbits, between the gland alveoli and capillaries of salivary and lacrimal glands. Wallenfang thinks that it is a pseudoleukemic condition. Minelli believes that it is a benign lymphoma of the salivary glands, which may become generalized just as is the case in Hodgkin's disease.

SUMMARY

After a careful review of all the cases in the literature, I stated, in the description of my first case, that "lues, tuberculosis, or both, in their latent or active stages play an important rôle in this condition, and that the variable pathologic picture is directly dependent as to which one is present or predominates." The present case only corroborates this view. And to my mind it is exceedingly doubtful if von Mikulicz' disease should be classified as a complete and separate entity.

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17. Hirsch: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1898 iii.
18. Haeckel: Arch. f. Chir., 1903, lxix.
19. Tietze: Beitr. z. Chir., 1896, xvi.
20. Stower: München. med. Wchnschr., 1901.
21. Baas: Ztschr. f. Augenh., 1903.
22. Napp: Ztschr. f. Augenh., 1907, xvii.
23. Kulbs: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908, xviii. Ziegler: New York Med. Jour., Dec. 11, 1909.
24. Stock: Klin. Monatsbl. f. Augenh., 1906, i.
25. Senator: Berl. klin. Wchnschr., 1907, xliv.
26. Marcuse: Berl. klin. Wchnschr., 1904 and 1907.
27. Osler: Am.. Jour. Med. Sc., 1898, cxv.
28. Dunn, J.: Arch. Ophth., 1907, xxxvi.
29. Cutler: Med. News, Philadelphia, 1904, ii.
30. Gallasch: Jahrb. f. Kinderh., 1874, vii.
31. Bock: Ztschr. f. Augenh., 1899, iii.
32. Adler: Wien. klin. Wchnschr., 1889.
33. Haltenhoff: Ann. d'ocul., Brussels, 1891, cii.
34. Ziegler: Ann. Ophth., 1906, xv.

The Wisdom of Doubt.—It will be well for us to remember the words of Pasteur: "In experimental science it is always a mistake not to doubt when facts do not compel you to affirm."—F. M. Sandwith, in (London) *Clinical Journal.*

GAS BACILLUS INFECTION—A REPORT OF SIX CASES *

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There has recently appeared in the *Annals of Surgery*[1] a comprehensive report by Dr. Cramp of this hospital on this type of infection, therefore, it will be unnecessary to go into detail in regard to the history of the cases previously reported. Of the two deaths in this series, one was caused by a deep infection of the thigh muscles complicated by considerable hemorrhage; the other was that of a patient admitted in an advanced stage, though the infection was controlled before the patient succumbed to a pulmonary disease.

That an infection of this type in a localized area can be overcome by the body tissues, as in the untreated interscapular area in Case 2, is a fact already proved by Blake and Lahey.[2] The hydrogen peroxid used in these cases was the undiluted U. S. P. 3 per cent. solution.

CASE 1.—W. D., aged 17, was admitted June 18, 1912, to the service of Dr. L. W. Hotchkiss. June 17, the patient fell from a height of five stories sustaining a compound fracture of the right tibia and fracture of the fibula. The wound was dressed and splints applied at another hospital and the patient was transferred to Bellevue the next day.

June 18: Temperature was 103; pulse 132; respirations 28. Physical examination was negative except for a compound fracture of the right tibia about 5 inches above the ankle; the fibula was fractured at about the same level. The wound was dressed with 7.5 per cent. solution of tincture of iodin and splints applied.

June 20: Temperature still elevated to about 103. Interstitial crepitus has become evident about the wound and extends upward toward the knee; leg very painful. Under nitrous oxid anesthesia, free longitudinal incisions were made in the crepitant tissue, gas bubbles of characteristic odor and dark red fluid exuding from the wounds. A thorough hydrogen peroxid irrigation was made and a dressing of peroxid-soaked gauze was applied. Both smear and culture from the fluid showed the *Bacillus aerogenes capsulatus.*

For the next two weeks the temperature fluctuated between 101 and 105 daily, and the patient had chills almost every day. Complete dressing was made but once a day, being so painful that on each occasion nitrous oxid had to be administered. Throughout the day the dressings were kept moist with peroxid. There was no extension of crepitus following the primary operation, and the wounds, though sloughy, and at first, giving off a disagreeable odor, gradually became clean and healed by granulation. There was severe persistent pain which at times could be relieved only by morphin.

The progress of the patient, except for a small superficial abscess on the back, which yielded quickly to treatment, was very good, and on August 18 the wounds were sufficiently healed to permit the leg to be encased in a plaster splint in which a window was cut to allow a discharging sinus to be dressed. On September 12 a painless swelling appeared in the lumbar region which when opened contained clear fluid showing, on culture, colon bacillus infection. On September 15 a small sequestrum was removed from the discharging sinus on the leg. By this time the temperature of the patient had become normal. Radiographic examination on October 1 showed osteomyelitis of the tibia about the seat of fracture with the presence of a sequestrum, but further operation at this time was considered inadvisable. Three weeks later, the patient, at his own request was discharged in care of his relatives for further treatment in the country. A report of this case made some five months later by Dr. E. M. Armstrong of Tuxedo, New York, shows a small sinus leading down to the bone and incomplete union at the site of the fracture.

CASE 2.—J. S., aged 29, admitted July 1, 1912, to another division of this hospital, had sustained, about half an hour prior to admission, a compound fracture in the upper third of the left humerus, caused by a blow from a paving-stone thrown from a height of five stories, the force of the blow felling him. On admission the wound was swabbed out with 7.5 per cent. solution tincture iodin and dressed with gauze soaked in 50 per cent. alcohol and splints were applied. Pulse in left wrist palpable. Temperature 97; pulse 65; respirations 20.

July 3: Temperature rose steadily yesterday afternoon, rising to 102.4 to-day; pulse 130, respirations 34. Interstitial crepitus found to be present about wound in arm and spreading across to midline anteriorly.

The operation under ether anesthesia in another surgical division of this hospital was a free incision in the deltoid as well as below the seat of fracture and in the anterior axillary fold. All incisions were connected and irrigated with hydrogen peroxid; drainage was by rubber tubing, the dressing of peroxid-soaked gauze. A thin dark red fluid containing gas bubbles which was obtained from the wounds showed the presence of the *B. aerogenes capsulatus.*

The case was transferred to the service of Dr. Hooker.[3] By 10 p. m., the same day the condition had become progressively worse, the patient being very weak and toxic. The interstitial emphysema extended across the breast to the right axilla and upward over the right clavicle to the supraclavicular fossa. In the neck the crepitus extended across the midline anteriorly and upward on each side to the level of the thyroid cartilage, and within 2 inches of the midline posteriorly; the lower limit of the crepitus was found in the fifth interspace at the sternum. The left wrist was pulseless. Under a general anesthetic very free incisions were made in the right breast and on each side of the neck, and blunt dissection was carried out widely through the crepitant tissue. Thorough peroxid irrigation and dressing of peroxid-soaked gauze was made. Dressings were changed every three hours and kept moist with peroxid.

July 4: Temperature 99.8; pulse 120; respirations 26. Patient weak and apprehensive; profuse sweating. No extension of crepitus beyond limits noted yesterday except a small isolated patch about 3 cm. in diameter high up between the scapulae. *This was not opened.* The left arm below the fracture was pulseless and becoming gangrenous.

July 6: Temperature 100; pulse 104; respirations 26. General condition improving slowly though patient shows signs of absorption from the gangrenous arm, in which the line of demarcation is forming. Interstitial crepitus is subsiding; the interscapular area has practically subsided without being opened.

July 8: The general condition is improving. Amputation of the left arm was done at the line of demarcation; the stump was left open and packed with peroxid-soaked gauze. The condition in neck and breast is improving.

The subsequent progress was very good; a localized furunculosis developed over the sacrum, but responded readily to incision and drainage. Except for a slight pocketing of pus in one of the wounds, those of the body and neck healed well by granulation. On July 12 some sloughs from the amputation stump still showed the presence of *B. aerogenes capsulatus* in spite of constant dressing with peroxid. The patient improved steadily, and on August 8, under ether anesthesia, the upper end of the left humerus was removed by incision through the joint capsule; the stump was left open and packed with gauze. The excised head of the humerus showed areas of necrosis. The patient was discharged from the hospital August 21 and by September 14 the stump was healed by firm scar tissue.

CASE 3.—S. J., aged 35, was admitted July 21, 1912, to the service of Dr. R. S. Hooker. Was wounded in the middle of the left thigh by the charge from a shotgun fired from a distance of 12 feet while he was attempting to rob a barge.

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* From the Surgical Wards of the First Division, Bellevue Hospital, New York.

1. Cramp, W. C.: Gas Bacillus Infection, with Special Reference to Treatment, Ann. Surg., October, 1912; abstr., THE JOURNAL A. M. A., Nov. 2, 1912, p. 1650.

2. Blake, John Babst, and Lahey, Frank H.: Infections Due to the Bacillus Aerogenes Capsulatus, THE JOURNAL A. M. A., May 21, 1910, p. 1671.

3. Presented by Dr. R. S. Hooker, at the meeting of the Society of Clinical Surgery in New York, November, 1912.

Temperature was 99.4; pulse 84; respirations 26. The injury occurred about one hour prior to admission to the hospital. On the anterior aspect of the left thigh was a large irregular wound in which the entire hand could be inserted and which extended backward past the inner side of the femur. The femoral artery could be felt pulsating in the posterior part of the cavity. Several gun wads and numerous leaden pellets were picked from about the artery and out of the depths of the wound. The cavity was irrigated with peroxid and swabbed out with 7.5 per cent. solution of tincture iodin. There was profuse oozing, and the wound was packed with lengths of gauze. Repacking was necessary in the afternoon on account of the persistent oozing. The severe pain in the leg was controlled by morphin. At 9 p. m. the temperature was 102.8; pulse 116; respirations 24.

The following day the temperature rose to 104 and the patient complained of pain in the affected leg. The outer packing was changed on account of a recurrence of the oozing. Tetanus antitoxin, 1,500 units, was administered.

The next day the patient became rather restless and complained of great pain in the leg. Temperature 103.2. There was a dark reddish fluid on the outer dressing and a disagreeable odor from the leg. No interstitial crepitus was felt. A diagnosis of gas bacillus infection was made, the thigh was opened up widely, irrigated with hydrogen peroxid and dressed with peroxid-soaked gauze. At operation the intermuscular planes were found to be infiltrated with a dark red fluid and gas bubbles giving the characteristic odor. Death occurred thirty hours later.

CASE 4.—M. W., a woman, aged 46, a prisoner, was admitted to the service of Dr. R. S. Hooker, July 21, 1912, having suffered a fracture dislocation of the upper end of the right humerus and a Colles' fracture of the right wrist. Temperature was 99; pulse 100; respirations 24. The body was filthy and showed multiple contusions; the legs were discolored and ulcerated. The patient was put in bed under restraint. The general condition was poor and the patient incontinent. The fractures were treated by plaster splints.

July 26: Temperature was 101.6; pulse 110; respirations 24. A large superficial bleb has appeared over the dorsolateral aspect of the first metacarpophalangeal joint of the right foot, the upper half of the bleb being occupied by a single large gas bubble. On incision the fluid below the bleb was found of a dirty, grayish-green color and the gas had a foul, disagreeable odor. The fluid was positive for *B. aerogenes capsulatus*. The base of the bleb was composed of sloughy superficial fascia. No interstitial crepitus was present in the foot. The affected area was irrigated with hydrogen peroxid and dressed with peroxid-soaked gauze.

Further progress was uneventful. The temperature came down to normal three days later, and for the next twelve days rose to about 99 each day. By August 15 healthy granulations were present over the affected area and the patient was discharged to court.

CASE 5.—W. S., a Russian man, aged 55, was admitted July 24, 1912, to another division of this hospital. Temperature was 103; pulse 100; respirations 29. Three days prior to admission a soft rubber catheter had been passed into the bladder, and for the last twenty-four hours patient had had some trouble in voiding urine. The history was unsatisfactory and indefinite. The patient had complained of no lesion about the anus. Scrotal swelling had appeared within the previous forty-eight hours. Patient was well nourished and well developed, but appeared very toxic. The lungs showed dulness and fine crepitations at both bases posteriorly and bubbling râles were heard throughout them. The heart sounds were of only fair quality.

Local Condition.—The scrotum was about four times its natural size, red, shiny and rather tense. The swelling was elastic and fine interstitial crepitus could be felt throughout the scrotal tissues. No fluctuation was present. There was an erythematous, indurated area with well-marked and slightly raised border extending out toward the ischial tuberosities on each side of the anus, forward on the perineum and upward on the pubes, and for a short distance on the inner side of each thigh. Catheter No. 20 F could be introduced into bladder without difficulty.

The operation was twelve hours after admission in another surgical division of this hospital and consisted of a free anteroposterior incision in the scrotum on each side of the median raphé, with a free median perineal incision. The scrotal tissues were found to be infiltrated with small gas bubbles and a dark reddish fluid of a disagreeable and characteristic odor. *B. aerogenes capsulatus* was found in smear and culture. Blunt dissection into the crepitant tissue was performed with hydrogen peroxid irrigation and the wounds were lightly packed with peroxid-soaked gauze. The patient was transferred to the service of Dr. R. S. Hooker. Some hours later, owing to the extension of the crepitus upward to each inguinal region and backwards over each ischial tuberosity, incisions were made in those regions and connected with the scrotal and perineal wounds, respectively, by undermining the intervening skin. Irrigation with peroxid and packing with peroxid-soaked gauze were repeated.

During the next five days the temperature was normal, the dressings were changed frequently and kept moist with peroxid. Although there was some sloughing of the scrotal tissue between the two lateral incisions, the induration decreased and there was almost complete subsidence of the gas bacillus infection. The edema of the lungs increased steadily, with only one period of temporary improvement, and the patient died five and one-half days after admission.

CASE 6.—W. R., an Italian boy, aged 5½, was admitted Dec. 15, 1912, at 6:30 p. m., to the service of Dr. John B. Walker. The patient was in shock suffering from a fracture in the upper third of the left femur, and a severe crushing, without open laceration of the left leg below the knee. The right thigh showed a compound supracondylar fracture of the femur and extensive crushing and laceration of the right leg below the knee. The patient had been run over by a wagon. The wounds were irrigated with a diluted aqueous solution of tincture of iodin; dressings and splints were applied and efforts made to counteract the shock. Temperature was 98; pulse 162; respirations 42.

December 16: The patient was very restless and fretful; some bloody discharge was on the dressings. At 8 a. m. temperature was 98; pulse 152; respirations 40. At 8 p. m. temperature was 102; pulse 162; respirations 42.

December 17: Temperature 104; pulse 164; respirations 42. When the dressings were removed a thin, reddish fluid with a disagreeable odor came from the lacerated wounds on the right leg. No interstitial crepitus could be felt. No circulation was present below the right knee. With a commencing gangrene of the leg and the strong probability of gas bacillus infection it was thought advisable to amputate above the supracondylar fracture in the right femur. This was done and smears taken, not only from the lacerated tissues, but also from the cut muscular surface of the amputated leg. Both showed the presence of *B. aerogenes capsulatus*, though examination afterward of the amputated leg showed gas bubbles only in the deeper calf muscles. No reddish fluid or gas bubbles were present at the site of amputation. On account of the presence of the gas infection at the amputation site the stump flaps were opened up and packed with peroxid-soaked gauze.

December 18: Interstitial crepitus was found in the stump. The affected areas were opened and irrigated with peroxid. Temperature was 103; pulse 150; respirations 28. The patient was delirious at the time and very weak.

December 19: There was an extension of interstitial crepitus in the stump, a free incision under nitrous oxid anesthesia was made, and peroxid irrigation used. By December 25 all interstitial crepitus had disappeared and healthy granulations were appearing. The left leg showed dry gangrene below the knee. The patient's general condition had improved, though he was much emaciated. Two weeks later amputation at the middle of the left thigh was performed for deep infection of the left leg which had developed in the dry gangrene and had spread to the knee. From this time on the patient improved steadily and by Feb. 2, 1913, the afternoon temperature reached only 100. The left stump healed by primary union

and the right stump by healthy granulations about the protruding end of the cut femur, which shortly afterward was removed under ether anesthesia, the wound healing by granulation. The patient was discharged for further treatment in the country. When seen last on March 23, 1913, there was a small area of healthy granulations on the right stump and the general condition was excellent. For permission to report the cases, I am indebted to Drs. Hotchkiss, Walker and Hooker, of this hospital, and further to Dr. Hooker, for his kind assistance in the preparation of these notes.

A CASE OF TUMOR OF THE HYPOPHYSIS

PARTIALLY REMOVED BY THE TRANSFRONTAL METHOD OF APPROACH

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AND
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MEDICAL NOTES BY DR. LLOYD

The following case occurred recently in my wards at the Philadelphia General Hospital. As a hypophyseal case it is noteworthy for two things, namely, the presence of marked pressure or "neighborhood" symptoms, and the absence of a distinct cachexia either of acromegaly or of the dystrophia adiposogenitalis. The patient was neither infantile nor acromegalic; he was not overgrown or undergrown; he was neither too fat nor too lean; neither too large nor too small; his sexual organs were normally developed and he did not have a "hypotrichosis" either of his face or of his pubes; he had no craving for sweets, nor had he any diabetes or polyuria, and his temperature range was normal. What he did have was rapid onset of blindness with headache and vomiting, and he presented, under the Roentgen ray, the evidence of a pituitary tumor. In addition to headache he had at various times, as will be seen in the clinical report, severe pains in the limbs (and even in the chest); and to these pains, as an unusual feature, we invite special attention. Somewhat similar pains have been reported in acromegalia; thus Cushing, in one of his cases, describes pains in the limbs, in the active period of overgrowth, as somewhat like growing pains. Whether such pains may really be referred pains, caused by pressure on or irritation of the cerebral peduncles, is a subject worthy of consideration. In this connection it may be well to recall the fact that referred pains are sometimes observed in lesions in other basal structures, as for instance in the optic thalamus. Pain in the paralyzed limbs has also been observed in hemiplegia even before the attack. In the partial obscurity which still shrouds the course of the pain fibers, it is impossible to do more than to theorize about the relation of these clinical facts with the facts of anatomy, but to me it is conceivable that a pituitary lesion might, by pressure, as by a hydrocephalus, cause involvement of these pain-tracts as they pass cephalad. Their course is doubtless through the cerebral peduncles and the optic thalami.

Patient S. W.—Russian, aged 21, was admitted Aug. 27, 1912. Family history was negative. The patient came to the United States from Russia in 1911. He is a fairly well-developed young man. He used alcohol and tobacco moderately and denies venereal infection. He had always been in good health up to the onset of his present illness.

Present Illness.—This began in August, 1911, when the patient was suddenly seized with violent headache, more marked on the right side, and repeated vomiting spells. The vomiting was propulsive, not preceded by nausea, except sometimes for a few moments, and occurred irrespective of eating, as a rule. This headache with vomiting lasted for several weeks and then ceased rather suddenly. After this illness the patient noticed that his vision was becoming hazy and that he saw double. He then began to have shooting pains in his right shoulder and arm, attended with tremor and convulsive movements of this limb. These movements do not seem to have been epileptic. At this time he received glasses at the Wills Eye Hospital, where a diagnosis was made of chorioiditis of the macular region. In June, 1912, the patient had another attack of headache and vomiting, not so severe as the former. After this second attack his vision failed still more until, on admission to the Philadelphia General Hospital, he could see only a little out of his left eye, and at best could only tell the difference between light and darkness. He said, also, that he had had a staggering gait since his first attack of headache.

Examination.—The patient was seen to be a fairly well-nourished young Hebrew. His musculature was rather poorly developed, but there was no excessive adiposis. His sexual organs were well developed and he had hair on his face and pubes. His gait was steady, without swaying or staggering, although somewhat uncertain because of his blindness. He was not paralyzed in any of his muscles. The knee-jerks were normal; Babinski reflexes absent; skin reflexes normal; sphincters not involved. The patient's mentality was good. The eyes were examined by Dr. Shumway, who made the following report: Double optic nerve atrophy probably following optic neuritis. The edges of the nerve-heads were obscure; the arteries very narrow; veins of good caliber. The nerve-heads were filled in from inflammatory changes. The eyes were entirely sightless and there was no pupillary response. The ocular movements were well performed; the eyeballs, at rest, slightly divergent.

After admission to the hospital the patient had a great deal of headache, coming and going, with attacks of cerebral vomiting. These attacks, and his blindness, constituted practically the whole of the symptomatology for a long while. The patient preferably remained in bed, lying on his back, often holding his hand to his head; but he had free use of his limbs and could arise and walk if requested. His mental state continued good and he had no speech defects. It is especially noteworthy that he occasionally complained of pains in his legs; these pains, taken in conjunction with similar pains which he had had in his arms before entering the hospital, and with the severe pains which he had in his arms and chest after the operation, as will be seen, may have more than usual significance. The patient never had an epileptic attack, nor any uncinate or olfactory aurae.

On one occasion the patient had pain in his right ear and under his right eye, followed by a slight chill and a little discharge from the ear. There was no tenderness or redness over the mastoid, but slight tenderness in front of the tragus. The attack passed by under the care of Dr. Grayson.

The heart, lungs and kidneys were normal. There was no polyuria.

The patient did not present the appearance either of acromegaly or of dystrophia adiposogenitalis.

The examination of the blood and cerebrospinal fluid gave the following result: The Wassermann test was negative in both. The cerebrospinal fluid was negative to the Nonne and Noguchi tests; no lymphocytosis.

The roentgenogram revealed the following condition: The floor of the sella turcica was entirely destroyed. A portion of the posterior clinoid processes remained and showed indistinctly. The appearance suggested that a tumor mass extended into the sphenoid sinus. There was also evidence of intracranial pressure in the fact that the cranial sutures were more or less separated.

It was unfortunately too late, when this patient was admitted to the Philadelphia Hospital, to take his visual fields. In these cases, as is well known, a bitemporal hemianopsia is sometimes seen in the early stages, caused by pressure on the optic chiasm. Other forms of hemianopsia, as a blotting out of the superior halves, have been noted.

SURGICAL REPORT BY DR. FRAZIER

Through the courtesy of Dr. Lloyd, the patient was transferred from the Philadelphia General Hospital to my clinic at the University Hospital, where the operation was performed. The roentgenogram showed such undoubted structural changes in the sella turcica that there could be no doubt as to the seat of the lesion, although most of the symptoms peculiar to pituitary lesion other than involvement of the tract were conspicuous by their absence.

In preparation for the transfrontal approach to the hypophysis by the route which has been adopted in my clinic, the size of the frontal sinuses is studied in the roentgenogram and by transillumination, and if one sinus is smaller than the other, this determines the side on which the operation is performed. From a comparative study of the methods of determining the size of the sinuses by transillumination and with the roentgenogram, we have found the former very much more reliable or, to be more accurate, I have found the roentgenogram quite misleading and not to be relied on.

The following is a description of the operation:

Under intratracheal anesthesia an incision was made beginning at the external angular process following the curve of the supra-orbital ridge to the median line. The second limb of the incision extended upward exactly in the median line 1 inch within the hair-line and the third limb ran within the hair-line down to a point on a level with the external angular process. The inner margins of the incision were dissected free for ½ to ¾ inch, a section of the frontal bone was made with the spiral osteotome, and an osteoplastic flap reflected, exposing the frontal lobe. In fashioning the flap care was taken to avoid opening the frontal sinus which in this case extended ¾ inch from the median line, and an equal distance above the supra-orbital ridge. With a Hey saw the supra-orbital ridge was sectioned obliquely, so that the piece to be resected was wedge-shaped. This is an essential step in the technic from the cosmetic point of view, as when this wedge-shaped piece of bone is replaced the contour of the supra-orbital ridge is preserved; the bone fits snugly in place and by its shape cannot be displaced below its proper level. With a pair of forceps the supra-orbital ridge thus sectioned was grasped and wrenched free, carrying away with it a portion of the wall of the orbit. What remained of the orbital roof was removed with rongeur forceps down to, but not including, the roof of the optic foramen. With two retractors, one in the hand of the assistant, the orbital contents were displaced somewhat downward and outward and the frontal lobe elevated. (I have found that, if the dura is punctured as soon as it is exposed, the continuous escape of cerebrospinal fluid facilitates the elevation of the frontal lobe.) The patient's head was now in the Rose position and, with artificial illumination, I selected a point in the dura at which to make a horizontal incision 0.5 cm. above the base of the skull from one anterior clinoid process to the other. The retractor was passed through the dural slit and, by gentle upward pressure, I laid bare a soft, reddish-gray mass which filled the sella turcica. This was removed in part. The bone flap was then replaced, a small wick of gauze introduced into the posterior angle, and those edges of the wound not within the hair-line were closed with great precision.

The operation was not attended with any special difficulty and confirmed the opinion I had already entertained as to the ease with which the sella could be uncovered. During the period of convalescence there was a marked edema of the face and somewhat of the neck on the affected side. Whether or not this is due to the escape of cerebrospinal fluid into the cellular tissue, I do not know, but whatever the cause may be, this phenomenon is not peculiar to this operation, as I have observed it in a number of operations where the flap is reflected from the frontal rather than the parietal region.

Dr. Lloyd has already made an interesting comment on the pains of which the patient complained before the operation. After the operation he complained more or less bitterly off and on for two weeks — less as the time went on — of pains in his extremities, but especially in the thorax at the base of the chest. These pains were the most conspicuous and the only feature of interest in the postoperative period. The patient was allowed to get up one week after the operation and was discharged from the hospital three weeks later. During this period some observations were made on the effect of pituitary feeding on the blood-pressure. Systolic pressure had been unusually low before, during and after the operation, varying from 90 to 95 mm. Hg. Under the continued use of pituitary extract in ascending doses there was not the slightest variation in the blood-pressure. Negative results were obtained also from the use of epinephrin. On several occasions during these observations there were sudden and unaccountable rises in temperature. The histologic examination of a portion of the specimen removed showed it to be a sarcoma with telangiectatic characteristics. Unfortunately the advanced stage of atrophy of the optic disks precluded the possibility of any improvement in vision.

In closing, I should like to emphasize the many advantages which the transfrontal operation has over the transsphenoidal methods. The facility of exposure, the opportunity of determining with some degree of accuracy the extent of the tumor, the avoidance of such contaminating influence as the secretion of the nasal mucosa, the splendid cosmetic results; these and other minor considerations should be given credit when any comparison of methods is made. To be sure, I have only applied the method to four cases, but in each of these the results were equally satisfactory and there were no fatalities.

1724 Spruce Street—116 South Twenty-First Street.

THE INVARIABLE BLOOD-STAIN

B. G. R. WILLIAMS, M.D.
PARIS, ILL.

For years I have used in my laboratory a method for the staining of blood-films which has proved so satisfactory from all points of view as to have earned the term "invariable." The idea is not original with me, but is based on two well-known principles, combined, modified and finally perfected. First of all, single films are best fixed by burning in absolute alcohol; a proper mixing of eosin with Ehrlich's acid hematoxylin gives an excellent stain, one which proved its worth before the panoptic formulas became so popular.

This method is especially suited to the needs of the general practitioner, the man who desires invariable results and who cannot become proficient in technic. Certain men, who do considerable blood work, are now using the "invariable" almost routinely. Several of these have prevailed on me to publish the formula and technic; and this will perhaps justify the addition of another to the several dozen good ones now in general use.

FORMULA AND TECHNIC

This stain does not fix. Briefly, it consists of a nuclear part, a special hematoxylin, and a cytoplasmic part, water soluble eosin. In 312 c.c. of a 3-months' ripened Ehrlich's hematoxylin, 0.1 gm. of the eosin is dissolved and the mixture filtered, if necessary. It is now ready for use, and, if tightly corked, may keep indefinitely, even improving with age. The mixture will appear rather thick, but if it becomes too thick a few drops of absolute alcohol may be added.

The technic is simple: Merely fix with burning absolute alcohol, and, after cooling, immerse the preparation

in the stain for fifteen minutes. Then wash in tap-water and dry. First of all light a burner (this insures prompt ignition of the alcohol before any of the erythrocytes suffer injury), seize the slide bearing the dried film and, with suitable forceps, hold with film face upward. Quickly cover with absolute alcohol. Shake off excess and then ignite in the flame, removing preparation immediately from the flame. The alcohol will flash off, leaving a dry and perfectly fixed film. Ignition must be prompt and alcohol absolute.

Permit the slide to cool and then place in Coplin jar filled with the "invariable." After fifteen minutes, remove the slide and wash in tap-water. Dry between blotters or by gentle heat according to standard methods. Staining solution may be used many times.

ADVANTAGES OF THE METHOD

1. The presence and precise nature of all anemias, leukemias and leukocytoses may be determined by use of the invariable stain. Eosinophilia in parasitic diseases, as well as basophilic alterations in plumbism, may be easily demonstrated. This completes the qualifications demanded of any stain so far as every-day work is concerned.

2. This staining method is reliable as well as rapid. The Wright's method is rapid, but not reliable, and this objection holds with men who do considerable work. I have seen many a poor Wright's stain in some of our best laboratories. For routine work, the physician can scarcely afford to waste time on a method which is not invariable. Unless he does considerable blood work, he will meet trouble with the Wright's technic. More than this, he will need to supply himself with many films in each case, for unless he is expert or lucky, he will not always be successful. I consider Wright's method the best of the popular formulas, but it should be used only when staining for the plasmodium, or in other special blood studies, especially when controls are needed.

3. Of all nuclear stains, this is the most beautiful. The nuclear figures are clearly cut and deeply stained.

4. Of all methods of blood-staining, this is the simplest. The technic is so easily applied that the first attempt is as successful as subsequent attempts. Laboratory skill counts for but little, and a failure amounts almost to an acknowledgment of stupidity.

109 East Court Street.

FURTHER NOTES ON TRANSFUSION BY MEANS OF GLASS CYLINDERS

A. R. KIMPTON, M.D., BOSTON

An article entitled "A New and Simple Method of Transfusion" appeared in THE JOURNAL recently. The following case is reported to show further the advantages of this method.

History.—A man aged 37 was knocked down by an automobile, receiving a compound fracture of the skull with crushing trauma of the brain. As I am reporting this case in order to bring out the technic of the transfusion I shall not enter into the details except to say that the patient had lost a large amount of blood and suffered from very severe shock, and that from a therapeutic point of view the transfusion was gratifying. The head injury had been operated on by Dr. A. L. Brown of Winchester, Mass., with whom I saw the patient.

Transfusion.—A tourniquet was applied on the upper arm of the donor only tight enough to give venous congestion. Under cocain a superficial vein just below the elbow was exposed through a 1½-inch incision. This was tied off proximally, and a Crile clamp was applied distally. A similar vein was exposed in the recipient's arm. This was tied off distally, and a Crile clamp was applied proximally. With a cataract-knife a slit was made in the vein of the recipient. A similar slit was now made in the vein of the donor; the clamp was opened, and a cannula of a 250 c.c. cylinder was inserted. This cylinder filled in less than two minutes (actual time was not taken). When filled the cannula was withdrawn and the clamp closed. The clamp on the vein of the patient was immediately opened, the cannula of the cylinder inserted and the cylinder emptied. A second cylinder (100 c.c.) was now filled from the same opening in the donor's vein and emptied into the same opening in the vein of the recipient. Two or more large cylinders could have been used if desired.

Remarks.—It is at once seen that this is an easy and certain performance, but it is justifiable to remark that one must understand the proper exposing and handling of blood-vessels to do it successfully. The technic is so simple that it is not necessary to have assistants trained in blood-vessel work, but the operator should be familiar with the technic of blood-vessel surgery. It is also justifiable to say that a failure probably means an error in technic.

Transfusions by vein-to-vein anastomosis have, of course, been done frequently, but the method has the difficulties and uncertainties of other direct methods. This method with glass cylinders, at least in my own hands, has proved certain and easy.

86 Bay State Road.

1. Kimpton, A. R. and Brown, J. Howard: A New and Simple Method of Transfusion, THE JOURNAL A. M. A., July 12, 1913, p. 117.

AN IMPROVED METHOD OF EXTRACTING OVA FROM STOOLS

H. L. MCNEIL, M.D., HOUSTON, TEX.
Pathologist to the Southern Pacific Hospital

Not having seen any mention in the literature of the following method since it was first published by Yavita[1] some months ago, and since I have had such excellent results with it, I feel that another mention of it will be of value.

The technic which I have employed for the past four months, slightly modified from Yavita's, is as follows:

A particle of the stool, about the size of a cherry, is placed in a test-tube. To this are added 5 c.c. of a 25 per cent. mixture of antiformin. This is mixed well and warmed over a flame, but not boiled. Five c.c. of ether are then added and the whole shaken well. It is then filtered through one layer of gauze and centrifuged one minute (water centrifuge). Four layers are formed. In the lower layer the eggs are found.

This method is excellent, also, when one is dealing with a fluid or semifluid stool. I have found it valuable in detecting hookworm ova in stools, the capsule of the egg not being injured in the least by the mixture. I have found it superior to the method which Dock and Bass recommended, as it requires less time, and there is less residue thrown down with the ova.

2612 Smith Street.

Apomorphin Hydrochlorid in the Vomiting of Pregnancy and in Nausea Generally.—Having under my care at one time a patient with a severe case of vomiting of pregnancy in which various treatments had been tried but without result, I tried apomorphin, giving 1/36 grain in a teaspoon of water. The vomiting ceased and was thereafter controlled entirely by 1/36 grain in water. This was about two years ago. Since then I have used it frequently, not only in the vomiting of pregnancy but in other cases of vomiting or nausea in which an antiemetic was indicated and always with decided results. In the minute quantities used it quiets the inflamed gastric mucous membrane with no ill effects and in so doing we have a better chance to apply other remedies needed to remove the cause.—MERTON FIELD, M.S., M.D., Canby, Minn.

1. Yavita: Deutsch. med. Wchnschr., 1912, xxxviii.

MANOMETER AND SAFETY-VALVE FOR USE IN THE OPERATION OF ARTIFICIAL PNEUMOTHORAX

LEWIS SAYRE MACE, M.D., SAN FRANCISCO

I wish to describe a simple and easily made manometer and safety-valve which I have found useful as an addition to the usual Forlanini apparatus which is used in the operation of artificial pneumothorax in lung tuberculosis.

This consists of a liter Erlenmyer flask having a three-holed stopper. Two glass tubes are arranged as in an ordinary wash-bottle, and through these tubes the gas is passed through warm sterile saline solution before its introduction into the pleural cavity. The third is a perpendicular tube open at both ends, by means of which the operator is enabled to read the intrapleural pressure at any moment while the gas is being introduced.

This manometer tube has an opening at a certain height above the level of the saline solution in the flask, so that if at any moment during the operation the positive pressure should rise to a dangerous height the liquid will overflow and no more gas can be injected until the pressure falls.

There are several advantages in passing the gas through the wash-bottle manometer before introducing it into the pleural cavity. The gas is warmed and moistened by passing through the warm saline solution and is less likely to cause unpleasant sensations and so-called pleural reflexes. There is no necessity for switching the manometer on and off during the operation, for the pressure, both positive and negative, is constantly before the operator.

On account of the ever-present danger in these operations of high intrathoracic pressure with the possibility of gas emboli resulting, the safety-valve feature of this manometer is most important.

It is surprising in using this apparatus how often one becomes aware of sudden rises of intrapleural pressure due to coughing or deep breathing of the patient. These sudden rises are most often noticed in those operations complicated by pleural adhesions, and in these cases it is practically impossible to avoid occasional high pressure except by a safety-valve of the kind I have described.

The wash-bottle manometer has still another use which in some cases becomes an important one. Should too much gas be injected and symptoms of dyspnea and cardiac pressure occur, it may easily and quickly be transformed into a syphon by changing the direction of the wash-bottle tubes and closing the manometer tube and withdrawing the necessary amount of gas.

240 Stockton Street.

A CASE OF PROLAPSED CORD

HORACE EDDY ROBINSON, M.D., NEW YORK
Assistant Physician to the Outpatient Department, Bellevue Hospital

From the point of view of the general practitioner, prolapsed cord is a serious complication and one which is liable to be met at any time. The following case is therefore of sufficient importance and interest, I believe, to justify its report. The patient, Lena C., a primipara aged 20, was examined during the eighth month and found to be in normal condition. She went into labor at term about 9 p. m. Labor progressed favorably until 10:45 the following morning, when the membranes ruptured. The patient was immediately put to bed, and it was noted that the cord was in the vagina. The knee-chest position was immediately assumed, and an unsuccessful attempt at replacing the cord was made. Cord pulsation was 132 and fairly strong. The patient was instructed to remain in the knee-chest position. Morphin was given, and assistance sent for. Following a second injection of morphin the pains were greatly reduced in frequency and strength. Assistants did not arrive until 12:10 p. m. During this period, the patient had remained in the knee-chest position and counter-pressure was exerted against the vertex by means of the examining fingers in the vagina. At this time she was put on the table and anesthetized. Version was performed, and without difficulty a living child was delivered at 12:43 p. m. Mother and child made an uneventful recovery.

SUMMARY

Membranes ruptured, prolapsing cord at 10:45 a. m.; patient immediately assumed knee-chest position; uterine contractions were controlled by morphin; counter-pressure on vertex relieved compression of cord. Just prior to version, the cord pulsation was 110, showing a drop of twenty beats per minute. Handling of cord was avoided as much as possible. Child was delivered two hours after prolapse, and was resuscitated without great difficulty.

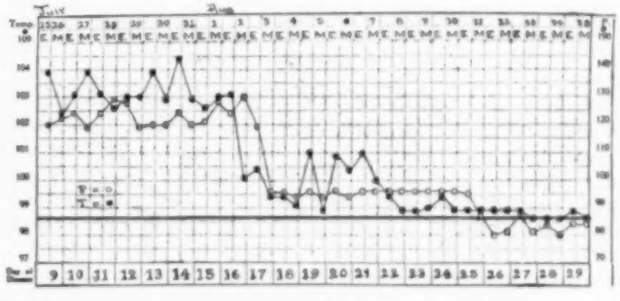
11 West Eighty-Eighth Street.

A SPORADIC CASE OF TYPHUS FEVER

HAROLD HASTINGS NEWMAN, A.B., M.D., WASHINGTON, D. C.

At the meeting of the Association of American Physicians, in Washington, May 6, 1913, Dr. John F. Anderson,[1] Director Hygienic Laboratory, United States Public Health Service, called the attention of the medical profession to the existence of typhus fever in Boston and New York. He expressed the opinion that typhus fever was unrecognized in other large American cities and stated, "the possibility should ever be borne in mind that it may acquire virulence and epidemic prevalence." On account of the preceding statements, I report the following case of typhus fever.

Patient.—A. C., a girl aged 12, of Bohemian parentage, had attended school in Baltimore, at the House of the Good Shep-



Pulse and temperature record in case of typhus fever in girl of 12, ending in pseudocrisis on sixteenth day of the disease.

herd, from December, 1912, till March, 1913. She had lived on a farm in the District of Columbia during the past year. The family and personal histories are unimportant. The present illness began Friday, July 18, 1913, with severe symptoms, including intense headache, which continued. On Tuesday, July 22, the patient was seen by a physician. She had a macular rash and a temperature of 104.8 F. The physician's impression was that it was a case of typhoid fever. Wednesday, July 23, another physician saw the patient and said she had a "rash." Her temperature ranged from 104 to 105 F on this and the next day. The attendant gave the opinion that it was scarlet fever. The patient was sent to the scarlet-fever ward of the Garfield Memorial Hospital Annex, Friday, July 25.

Examination.—The patient suffered from severe headache and great prostration. She was hyperesthetic, crying out at even gentle touches of her body. Her hair was infested with "nits." Her ears were negative as to signs. The conjunctivae were congested. There was no nasal discharge. The soft palate was slightly reddened and showed several small (3 mm.) ecchymoses. Her tongue was coated and the pharynx was faintly injected. The lymph-nodes were not enlarged. Signs in lungs and heart were negative. She had no cough. The liver and spleen were not palpable. The deep reflexes were normal. Kernig's sign was suggestive. The neck was not rigid. Over her entire body, more marked over the dependent areas, was a macular rash, with the macules about 3 mm. in

1. Anderson, John F.: The Problem of Typhus in the United States, THE JOURNAL A. M. A., June 14, 1913, p. 1845.

diameter, rusty colored and unmodified on pressure. Blood examination showed hemoglobin, 85 per cent.; red blood-cells, 4,500,000; white blood-cells, 5,360. Widal negative. Dr. Goldberger of the Public Health Service made a blood-culture and an intraperitoneal inoculation of a guinea-pig, with negative result. The negative reaction in the guinea-pig is not unusual, Dr. Goldberger finds. The stool examination and culture for typhoid bacilli were negative. Urine examination was negative except for positive Diazo.

Course of Disease.—The patient had a continuous remittent fever which ended in "pseudocrisis" on the sixteenth day of the disease. This and the pulse-rate are shown on the accompanying chart.

Tuesday, July 29, dusky mottled-appearing macules were first noted on the face and neck. On this day some petechial macules were noted, among others on the feet and buttocks. Next day, the petechiae were numerous and diffuse over the body, especially over the elbows. With the temperature fall on Friday, August 2, the rash began to fade. By August 13 it had disappeared from the body, remaining faintly on the face and neck, and soon was invisible.

The case, typical typhus fever, was a puzzling one for a time. Various diagnoses were offered, namely, typhoid fever, scarlet fever, measles, cerebrospinal meningitis and Henoch's purpura. My experience in this case leads me to agree with Dr. Anderson that unrecognized typhus fever is prevalent. I hope this example will stimulate the medical profession to watch for such cases.

The diagnosis in this case was confirmed by Drs. Louis Mackall, H. P. Parker and by Drs. John F. Anderson and Joseph Goldberger of the United States Public Health Service.

Garfield Memorial Hospital.

A Case of Exophthalmic Goiter Apparently of Syphilitic Etiology.—T. W., a man aged 34, married, contracted syphilis six years ago, for which he was treated by iodid and mercury. He persisted in this treatment for two years and to all intents and purposes was cured. One year ago last June he developed the classical symptoms of exophthalmic goiter. He then consulted his family physician, who used mercurial medication with no appreciable benefit. This practitioner informed me that while under his care the patient's pulse varied from 120 to 160 per minute. He next consulted a local doctor and received a little benefit from his treatment, so that when he consulted me May 19, 1913, his pulse-rate was 103 per minute. The exophthalmos was the most prominent symptom. The patient's eyeballs protruded so markedly as to be startling and the goiter was about as large as an English walnut. He had only a slight tremor. On July 1, when I administered 0.6 gm. salvarsan intravenously, his condition was the same. July 18 his pulse was 94. Five days later he received a second injection of salvarsan of the same amount and on July 28 a third. August 1 his pulse was 86 per minute and the exophthalmos had quite noticeably diminished. He received a fourth and last injection on August 4. August 14 his pulse was 83. The last time I saw the patient, August 26, after sitting quietly for fifteen minutes, his pulse was 80 and he had no exophthalmos. The tremor, too, had disappeared. The appearance of the mucous membrane had improved markedly as a result of the treatment, the drug having acted as a hematinic in his case.—HAROLD J. LEVIS, M.D., Rochester, N. Y.

Cancer and the Surgeon.—I am, of course, well aware that all cases of cancer of the stomach, unhappily, do not come to the surgeon. No one but the surgeon can do any good to patients so afflicted. Yet there is a strange timidity of approach to the surgeon which is unaccountable, and far too often the favorable period in the history of a case is allowed to slip away before any recognition of the real conditions is attempted.—Sir Berkeley Moynihan, Address in Surgery, Brit. Med. Assn., 1913.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

AGGLUTINATING SERA FOR DIAGNOSTIC PURPOSES.—These are the sera of animals (horses) immunized against various bacteria. The serums are dried and powdered and marketed in packages containing a definite weight of the powder. For use the powder is dissolved in water to make a solution of a definite strength which constitutes the agglutinating titer. This solution is added to a suspension of the bacterium to be tested, and after incubation for a certain period the mixture is examined. The clumping of the bacteria may be determined microscopically by observing whether the bacteria have sunk to the bottom of the container or the process of agglutination may be watched under the microscope.

H. K. Mulford Co., Philadelphia, Pa.

Agglutinating Serum for the Identification of Bacillus Paratyphosus A.—Marketed in sealed ampoules containing each 1 gm. of the dried serum having the agglutinating titer 1 to 20,000. Intended for use by the macroscopic method, the reading being taken after 24 hours.

Agglutinating Serum for the Identification of Bacillus Paratyphosus B.—Marketed in sealed ampoules containing each 1 gm. of the dried serum having the agglutinating titer 1 to 50,000. Intended for use by the macroscopic method, the reading being taken after 24 hours.

Agglutinating Serum for the Identification of Bacillus Typhosus.—Marketed in sealed ampoules containing each 1 gm. of the dried serum having the agglutinating titer 1 to 24,000. Intended for use by the macroscopic method, the reading being taken after 24 hours.

Therapeutics

TYPHOID FEVER

(Concluded from page 1537)

TREATMENT OF THE FREQUENT COMPLICATIONS

The only complications that will be here discussed are failure of the circulation, insomnia, intestinal hemorrhage and perforation.

Very generally, if a typhoid patient is properly managed, the heart will not be very rapid and the pulse tension will be good for the first two weeks without any artificial assistance, and the heart may be all right throughout a mild attack without such assistance. The cup of coffee in the morning gives a caffein stimulation to the heart, and if it has been accustomed to such stimulation it is certainly good treatment. In children, who are not used to coffee or tea, a cup of tea occasionally may be of medicinal value.

Alcohol should of course never be used as a cardiac stimulant. On the other hand, in small doses, as above stated, it may be used as a nutriment. In such small doses it probably has very little effect on the circulation. At times, if the patient has been used to considerable daily amounts of alcohol, it may be advisable not to stop it, much as we would not stop a morphin habit during an acute illness. At times there can be no question (and those who deride the use of alcohol in typhoid fever have no justification in disputing the fact) that with a high, bounding pulse, flushed face, dry skin, rapid heart,

and heavily coated tongue, sometimes the proper dose of alcohol will lower the blood-pressure, dilate the peripheral vessels, cause perspiration and more radiation of heat, and relieve the troubled heart, and at the same time moisten a dry tongue and improve the general condition. On the other hand, the majority of patients do not need alcohol, and if too much alcohol is given the reverse of the above good condition occurs; the patient is excited both cerebrally and circulatorily by the alcohol, and its activity is harmful. It cannot be too strenuously urged, however, that when a heart fails and the blood-pressure is low, alcohol should not be given, as it will render the condition worse.

The most overused to-day of all drugs is strychnin, and part of its overuse occurs in typhoid fever. It has been shown that it generally does not raise the blood-pressure in serious illness, even in large and frequent doses. Therefore, in acute heart failure, large doses should not be given. If there is cerebral excitation, sleeplessness, restlessness, and nervous irritability generally, strychnin is certainly contra-indicated, and many times it is the cause of the typhoid patient being restless and sleepless. If there is a so-called "typhoid state," with more or less tendency to stupor, with sluggish nerve centers, strychnin is doubtless the drug of choice. It is perhaps wise, when the pulse tension flags from lack of tone of the muscular contractions of the heart in the third or fourth week of typhoid fever, to begin small doses of strychnin, as tending to activate all of the nerve centers, and in small doses to stimulate the heart to proper activity.

It is rarely advisable to give more than 1/30 of a grain of strychnin once in six hours, although, if deemed advisable, such doses may be administered hypodermatically. It will not save a heart that is going to fail; on the other hand, it may cause a heart to become irritable and rapid, the heart not seeming to have its normal diastole and rest. At the same time it stimulates, in large doses, the central nervous system to the disadvantage of the whole organism.

It is not the purpose of this article to discuss the whole subject of the treatment of cardiac failure, but suffice it to say that perhaps in pituitary extract[4] we have a preparation (which is presented to us in aseptic ampoules) that when administered hypodermatically may be of marked advantage in these cases of heart failure. The action of glandular extract is of more value for such cases than is the suprarenal extract.

The value of camphor as a nervous and cardiac stimulant is now pretty generally understood. Proper preparations of camphor may be administered hypodermatically, or it may be given in one of the well-known preparations by the mouth.

Sleeplessness in typhoid fever, especially during the early stages, is a frequent complication; but, to reiterate, the proper management of the bowels, the proper management of the room, and the institution of more or less open-air treatment (at least plenty of fresh air from open windows), the regulation of the diet, and the withholding of any unnecessary stimulant drug will generally allow these patients to sleep without any medication. An absolutely sleepless patient, however, must be made to sleep, and perhaps a few doses of sodium diethyl-barbiturate,[5] sold as medinal and veronal-sodium, each dose consisting of 0.20 to 0.25 gm. (about 3 or 4 grains), will cause a normal sleep habit. If there is marked cerebral irritation, a dose or two of bromid or of chloral may be necessary. None of these drugs should be long repeated, and it is rarely necessary. If the circulation is weak and the patient sleepless, the safest drug is morphin, and the dose need not be large. One-eighth of a grain, or less, given hypodermatically, is ample.

Hemorrhage from the intestine requires the administration of a sufficient dose of morphin hypodermatically to stop peristalsis, and 1/8 of a grain is generally sufficient, and perhaps best combined with 1/150 grain of atropin, with the withholding of all food for at least twenty-four hours, the administration only of such water as is needed for the patient's comfort, and the application of an ice-cap or cold coil to the abdomen. If the patient shows serious anemia from loss of blood, transfusion of blood must be considered, and perhaps surgical interference.

With a diagnosis of perforation of the intestine immediate operative interference is the only treatment, and the success from such immediate operation is constantly on the increase, showing that such a procedure is not only justifiable but advisable.

CONVALESCENCE

A convalescent patient, who has been on the preceding diet, does not show the emaciation that we used to see when the typhoid patient was either starved or on an absolute milk diet. The increase in the diet should for a time not be great, as he has been having most of the kinds of food that he needs. The main object is gradually to increase the amount at regular meal times and let the intermediate feedings be of less importance and contain less nutriment.

The patient should not be raised on several pillows, and certainly should not be allowed to sit up, until his cardiac strength has returned. There is no safer estimate of such strength than a pulse that does not become rapid when he turns or moves, and perhaps he should not sit up at all until his blood-pressure is above 100 mm. at least, of course, the desired blood-pressure depending on the age of the patient. Many a continued weak heart and circulation has occurred from a seriously ill patient being allowed to sit up or walk around too soon; and the same is true of allowing him to work too soon.

These patients generally have a good appetite. If they do not have appetite, they may be given some simple bitter tonic. Perhaps one of the most essential elements that they need is calcium, and it may not be better offered than in the form of the calcium glycerophosphate, in powder or capsule, in 0.30 gm. (5-grain) doses, three times a day, after meals. If the patient has not been taking iron, he should receive iron in any simple form, perhaps in the form of the *Eisenzucker*, as above suggested.

If relapses tend to recur, and if after a sufficient length of time for complete normal eradication of typhoid bacilli the feces or urine continue to show such, the patient should be inoculated with dead typhoid bacilli, as previously suggested. Also, it is quite possible that the administration of hexamethylenamin should be continued, or if it has not been given, should be begun during the convalescent period.

It is very important to remember that as soon as a typhoid patient has recovered he should see his dentist and have his teeth carefully examined, all cavities filled, and any tendency to pyorrhea prevented.

The care of the mouth during the fever has not been described, as it is presumed that proper cleanliness and proper treatment of ulcerations are part of the hygiene of a typhoid patient.

4. N. N. R., THE JOURNAL A. M. A., June 21, 1913, p. 1957.
5. New and Nonofficial Remedies, 1913, p. 78.

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SATURDAY, NOVEMBER 1, 1913

RENAL DIABETES

Although the existence of glycosurias due to changes in the kidneys, particularly as a result of the administration of drugs like phloridzin, is well established in an experimental way, as much cannot be said in respect to the clinical cases of glycosuria which occur in man. The possibility of a renal diabetes involving an increased permeability of the kidneys analogous to phloridzin glycosuria has been suspected and has found advocates at various times since the first suggestions of Lépine[1] and Klemperer[2] in this direction. As the cases were critically studied, however, the proofs of the specific functioning of the kidneys in the pathogenesis of the glycosuria in most instances failed. It is undisputed that the development of renal lesions, especially chronic interstitial nephritis, in a diabetic may greatly reduce the excretion of sugar in the urine. That the reverse effect, that is, the elimination of sugar as the result of renal changes, may likewise take place cannot be denied on general principles. To establish the distinctly renal origin of a glycosuria it is fundamentally necessary to demonstrate that the excretion of sugar is not the result of a hyperglycemia. So long as the content of sugar in the blood is above the normal there is no occasion to conclude that an attending glycosuria has an etiology different from the usual type such as is commonly associated with perversions of pancreatic function. It is only in recent years that the technic of sugar estimation in the blood has been adequately developed and that this process has become a feature of the diagnostic study of cases of diabetes. The few data available for the earlier alleged instances of renal diabetes show a content of sugar in the blood if anything above rather than below what is now established as normal. Thus in Klemperer's oft-cited case it was 0.18 per cent. Estimations of sugar content of the blood are now so frequently made that an abundance of reliable statistics on this constant is available. For the blood-plasma of healthy man it varies between 0.08 and 0.11 per cent., the upper limit probably being at about 0.12 per cent. The figures for the total blood are not widely at variance from this.

Two criteria are essential in attempting to establish the renal origin of glycosuria. The excretion of sugar should be demonstrated to be more or less independent of the carbohydrate intake; for the glycosuria need not be entirely checked by regulation of the diet if a kidney factor rather than a more remote one is the pathogenic feature. More important, however, is the second test, namely, the demonstration that the glycosuria results in a hypoglycemia or at any rate that the sugar-content of the blood is not above the normal as is uniformly the case in the classic forms of diabetes.[3] Although such discriminating standards have been proposed only in recent years, and few cases have been tested adequately in the light of such differential diagnostic requirements, there are now a small number of records collected by reliable observers which seem to justify the real existence of a renal diabetes in man. The subject has been reviewed of late by Erich Frank[4] of Minkowski's clinic at Breslau. Sometimes the pathologic condition appears to be latent. There is no excretion of sugar until a liberal amount of carbohydrate is fed, whereupon glycosuria appears despite the fact that the blood sugar-content is well within or even below normal bounds. This seems to be peculiarly characteristic of pregnancy, so that Frank has come to the conclusion that almost every pregnant woman exhibits a latent renal diabetes which at once manifests itself when an abundance of sugar is fed.

The practical importance of recognizing a renal diabetes lies in the fact that this type does not call for a restricted dietary in the same way as does the usual human diabetes. It is too early to formulate an adequate theory as to the cause of the renal diabetes, if this shall at length be definitely established as a clinical entity. Tentatively we may assume, by analogy with the way in which a glycosuria of renal origin can be induced experimentally by drugs, that the perversion of the kidney function is the outcome of the action of a toxic substance arising, as it easily can, within the organism itself in some of the many upsets to which human metabolism is subject.

1. Lépine, R.: Nécessité d'admettre l'intervention d'un élément rénale dans le diabète sucré, Rev. de méd., 1896, p. 594.
2. Klemperer, G.: Ueber regulatorische Glykosurie und renalen Diabetes, Ber. d. Ver. f. inn. Med., Berlin, May 18, 1896.
3. The Blood-Sugar in Human Diabetes, Current Comment, The Journal A. M. A., Aug. 9, 1913, p. 418.
4. Frank, Erich: Ueber experimentelle und klinische Glykosurien renalen Ursprungs, Arch. f. exper. Path. u. Pharmakol., 1913, lxxii, 387.

THE PROSECUTION OF QUACKS

The Chicago *Tribune* gives short shrift to medical fakers. It is one of those high-class newspapers, whose numbers are happily increasing, that refuse to pollute their pages with the advertisements of quacks. For the past two or three weeks the *Tribune* has had some members of its staff investigating the methods of Chicago advertising quacks of the "men's specialist" type, and in recent issues has given the results of these investigations. In showing up the villainous character of this disreputable business, this paper has done a distinct

service to the public. When the first exposure was printed, the *Tribune* had a pertinent editorial on the subject, in which it asked the question:

"Gentlemen of the American Medical Association and of the Chicago Medical Association, what are you going to do about it?"

And closed with the statement:

"This obscene traffic should be rooted out. It should be destroyed in Chicago. It should be destroyed wherever it goes on in the country, and it goes on everywhere. This is work for the American Medical Association to push energetically and to insist on the authorities completing."

The *Tribune* is mistaken in assuming that it is the work or duty of the American Medical Association to take any part in the prosecution of quacks, whether they operate locally or nationally. As scientific organizations, neither the American Medical Association nor the Chicago Medical Society is morally or legally concerned with this problem. The duty devolves explicitly and directly on the officers of the law who have been elected by the people to protect them against fraud. Physicians individually and collectively, through the American Medical Association, have for years been exposing the fraud practiced on the public by the quacks and "patent-medicine" fakers. The medical profession, with but one or two notable exceptions, has been well-nigh alone in this work. Vast vested interests are involved in the dirty business of both quackery and nostrum exploitation. The powers that should have protected the public have not acted, either because the public itself was indifferent on the question — being ignorant of the menace — or because there was little to be gained and much to be lost by fighting firm-rooted evil. Public prosecutors have possibly hesitated to act because they knew that, in many instances, the newspapers whose support they desired were not only out of sympathy with such prosecutions, but were actually participating in the unholy profits of the quack and the nostrum vender.

To leave such prosecution to the medical profession is to invite the inevitable cry, on the part of the quack, of "persecution" by the "doctors' trust." With a shrewd lawyer—and the quacks employ just such men, the length of their purses being well-nigh unlimited—it is not difficult to persuade the average lay jury that the plausible quack is being haled into court, not because he has defrauded the public, but because he has incurred the enmity of reputable physicians, whom the public look on as competitors! Time and again has this fact been brought out and the quack has been found "not guilty," the prosecution has failed and the swindler has gone forth, tongue in cheek, in the pose of a persecuted, much-maligned martyr.

When a crude swindler sells to the unsophisticated a "gold-brick," the officers of the law do not hesitate to prosecute. Yet here the pocketbook only is depleted; life and health are not involved. With the medical swindler, however, it is different, and action is seldom taken unless public officials are spurred into action by forces that should never need to be invoked. It is possible, of course, that the "gold-brick" swindler would be equally immune from prosecution if influential newspapers received large advertising contracts from people engaged in the "gold-brick" industry.

Let the officers of Chicago or of Cook County, whose duty is to protect the public, proceed against these "men's specialist" quacks, exposed by the Chicago *Tribune*. Let the State Board of Health revoke the licenses of such men as are employed in these "men's specialist" offices. There is no more reason for invoking the services of the American Medical Association or the Chicago Medical Society in this work than there would be for calling on the American Chemical Society to prosecute the street faker who offers to sell for a dime a wonderful mixture for turning brass or copper into silver. All that can be asked of the American Medical Association is that it should enlighten the public on the dangers of quackery. This the Association, through THE JOURNAL, has done, is doing and will continue to do, and the effect of this enlightenment is beginning to be felt in a national movement toward purging the newspapers of the country of medical frauds and fakes. More than this should not be expected of the medical profession. In fact, it is an economic and social error to attempt to shift the responsibility for prosecutions of this sort from the shoulders where it rightly belongs.

SYPHILIS AND ACUTE YELLOW ATROPHY OF THE LIVER

The occurrence of icterus to a greater or less degree during the secondary stage of syphilis is commonly recognized as not an unusual feature of the disease. According to statistics obtained from different clinics, from 1 to 2 per cent. of the total number of cases in which syphilis is present show, during the active stage of the infection, a greater or less degree of icterus, which has generally been ascribed to the direct action of the spirochetes on the liver. It is perhaps less generally known that sometimes this icteric condition passes into a typical clinical and anatomic picture of acute yellow atrophy of the liver. During the past few years, especially, cases of this sort have been reported, and since Fischer[1] in 1908 collected from the literature about fifty reliable examples of acute yellow atrophy in syphilis, this number has been considerably increased. There seem to be no particular features which distinguish these from the cases in which acute yellow atrophy exists from other or unknown causes. One is somewhat impressed, on looking over the clinical records, with the usual failure to demonstrate the presence of leucin and tyrosin in the urine; but it must be admitted that the prevailing impression as to their presence and the text-book statements concerning the abundance of these amino-acids in the urine during acute yellow atrophy, are, on the

1 Fischer: Berl. klin. Wchnschr., 1908, lxv, 905.

whole, exaggerated and misleading. On the other hand, in one case of syphilitic icterus and in two infants with inherited syphilis, Buschke[2] found leucin and tyrosin in the urine by using refined methods of chemical analysis.

There are two causal probabilities for the occurrence of this fatal complication in an otherwise not particularly severe syphilitic infection. One is that the severe hepatic injury is caused by a direct invasion of the liver by the spirochetes, or by the action in the liver of poisonous substances coming either from extrahepatic spirochetes or from tissues invaded by them. In this connection it can be said that attempts to find spirochetes in the liver, both by microscopic examination and through the inoculation of animals, have generally failed, and the clinical course of the cases has not usually indicated that any unusual amount of toxic material is being formed. Another possible causative factor may be found in the therapeutic attack on the disease. Acute yellow atrophy is essentially a rapid autolysis of liver tissue whereby a large proportion of it is dissolved, and the amino-acids liberated by the autolytic enzymes are carried away in the blood and excreted, occasionally in the urine. It has been demonstrated that mercury and arsenic salts markedly stimulate tissue autolysis,[3] which raises the question as to whether these essential and specific remedies may not, at least in some instances, be responsible for the acute yellow atrophy. This possibility is supported by many of the clinical records, which show that the jaundice appeared during or shortly after the time when the patient was receiving mercurial treatment.[4] There have also been two carefully studied cases in which acute yellow atrophy occurred during treatment of syphilis with salvarsan.[5] In one of these at least, there seems little doubt that the arsenic produced the condition, for the icterus appeared a few hours after the salvarsan was injected, and arsenic was found in the liver in not inconsiderable amounts. On the other hand, it is certain that mercury and arsenic are not always responsible, for not a few cases of acute yellow atrophy have developed in syphilitic persons who were not receiving any form of treatment and, furthermore, the hepatic conditions have been seen to improve under mercury.[6]

Since, therefore, syphilis of itself can cause an acute yellow atrophy, the question arises whether we ever have the right to incriminate the metallic salts when this complication arises in syphilis. An affirmative answer is indicated by the results in such cases as that reported by Tileston,[7] in which a non-syphilitic boy was treated for sympathetic ophthalmia by mercurial inunction for two months and developed acute yellow atrophy. Fortunately acute yellow atrophy is an extremely rare complication in syphilis, but, however rare it may be, if the necessary treatment is ever responsible it should be generally so understood in order that the possibility of even remote danger may be removed.

2. Buschke: Berl. klin. Wchnschr., 1910, lxvii, 238.
3. Truffi: Biochem. Ztschr., 1909, xxiii, 270; Lacquer & Ettinger: Ztschr. f. physiol. Chem., 1912, lxxix, 1.
4. Bendig: Berl. klin. Wchnschr., June 20, 1908, p. 1229.
5. Severin and Heinrichsdorff: Ztschr. f. klin. Med., 1912, lxxvi, 138.
6. Buschke: Berl. klin. Wchnschr., 1910, lxvii, 238.
7. Tileston: Boston Med. and Surg. Jour., 1908, clviii, 510.

THE INFLUENCE OF ALTITUDE ON THE BLOOD

In various discussions which have been introduced in THE JOURNAL on the physiologic influence of high altitudes on the composition of the blood,[1] attention has been directed to the need of employing experimental methods of a high degree of accuracy in the study of this subject. Much of the criticism directed at the conclusions hitherto reached has been aimed at the alleged insufficiency of the methods adopted or the inadequacy of the technic of the investigators. This applies in particular to the much-debated question of the blood-count at high altitudes and the interpretation of the actual phenomena reported. The German physiologist, Bürker of Tübingen, has devoted much attention to this special aspect of the problem. The report of his investigations, which were referred to briefly some time ago, has now been published in detail[2] and furnishes some convincing data on mooted topics. They include comparative observations made at Tübingen (altitude 314 meters or 1,030 feet) and the Sanatorium Schatzalp (1,874 meters, about 6,150 feet, and about 300 meters above Davos).

One need only make a careful survey of the extensive literature on the physiology of altitude to reach the conclusion that none of the extreme statements made in relation to it can hold. In the light of what has been observed in the past it is unlikely, for example, that altitude is, on the one hand, entirely devoid of effects on the blood or, on the other, productive of the extreme changes which have been attributed to it. Bürker's findings, which appear to result from an exceptionally careful personal investigation with every precaution to avoid experimental error, show that altitude does exert an unquestionable influence on the blood in the direction of an increase in both the number of erythrocytes and the content of hemoglobin. The increase is an absolute one, not merely relative. The red cells increased from 4 to 11.5 per cent., the hemoglobin from 7 to 10 per cent. These figures, it will be noted, are smaller than those usually given for the effect of moderate altitudes, yet they represent substantial and undeniable gains quite in harmony with other previous observations.

The responses of the different persons in Bürker's Alpine expedition varied in degree; but the qualitative

1. Experimental Investigation of the Physiology of High Altitude, editorial, THE JOURNAL A. M. A., Aug. 10, 1912, p. 449. Physiologic Features of High Altitude, editorial, Sept. 21, 1912, p. 942. The Blood Phenomena of Altitude, editorial, July 26, 1913, p. 283.
2. Bürker, K.; Jooss, E.; Moll, E., and Neumann, E.: Die physiologischen Wirkungen des Höhenklimas: II. Die Wirkung auf das Blut, geprüft durch tägliche Erythrozytenzählungen und tägliche qualitative und quantitative Hämoglobinbestimmungen im Blute von vier Versuchspersonen während eines Monats, Ztschr. f. Biol., 1913, lxi, 379.

examinations of the blood established the fact that no hemoglobin derivative other than oxyhemoglobin was concerned in the increment at altitudes. In agreement with most observers the adjustment of the blood to the new atmospheric conditions in ascending to higher levels occurs promptly; there is a rapid increase in the factors involved at the start followed by a more gradual continuation of the effect; but on returning toward the sea-level the blood does not resume its "low altitude" composition so promptly. There may be a prolonged delay in the adjustment and return to normal figures. This phenomenon of the "after-effect" of high altitudes on the blood is also strikingly shown in the observations of Schneider of Colorado Springs on one of the most exceptional subjects ever examined.[3] It concerns a man who for seventeen years has been the resident manager of the Summit House on Pike's Peak at an altitude of over 14,000 feet. The hemoglobin in the blood of this man decreased very slowly after his descent from Pike's Peak at the end of a six months' stay. The percentage fell from 148 to 132 in thirty days and to 122 during the following six weeks spent at the lower altitudes. The number of red corpuscles decreased from 7.7 to 7.0 millions; the total volume of the blood showed an increase of 5.4 per cent. on the sixth day and a maximum, 7.5 per cent., on the thirtieth day. Similarly the oxygen capacity of the blood did not alter immediately after the descent from the Peak, but at the end of ten weeks a marked decrease was noted, as the other changes in the chemical makeup of the blood would lead one to expect. The changes here noted agree in a general way with those observed by Douglass, Haldane, Henderson and Schneider, the members of the Anglo-American Pike's Peak Expedition in 1911.[4] The sojourn of these physiologists was, however, less prolonged than that of the resident hotel manager.

Other incidental observations of Schneider on his unique subject are of more than passing interest. For instance, during a period of six years the arterial pressure has remained normal. The pulse-rate on Pike's Peak was about 82; the first days after the descent it remained at 60 and later accelerated to 70. The popular belief, also held by some physicians, that the chest is greatly enlarged by residence at high altitudes, has not been confirmed by Dr. Schneider. He maintains, with good evidence, that the vital capacity and chest measurements are not greater than those of men of similar physique at sea-level.

Bürker has also given attention anew to the old question of the possible effects of the electrical conditions in the atmosphere of high altitudes as well as the peculiarities of the sunshine. Nothing tangible could be made out for these factors. The controlling element in the physiologic reactions is first and last the rarefied air, in response to which the interesting adjustments are initiated.

3. Schneider, E. C.: Physiologic Observations Following Descent from Pike's Peak to Colorado Springs, Am. Jour. Physiol., 1913, xxxii, 295.

4. Douglass, C. G.; Haldane, J.; Henderson, Y., and Schneider, E. C.: Phil. Tr. Roy. Soc., London, B, 1913, cliii, 271; Anglo-American Expedition to Pike's Peak, editorial, THE JOURNAL A. M. A., Aug. 10, 1912, p. 449

BACTERIAL METABOLISM

Inasmuch as the cells are the ultimate biologic units in the majority of physiologic and pathologic phenomena with which the problems of medicine are concerned, it is only natural that minute attention should be devoted to these primary subdivisions of living matter. When once the mechanism and functioning of the cells shall be completely unveiled, hitherto impenetrable mysteries in the life-processes will promptly be dispelled. On general principles it would seem more rational to attempt to solve the perplexities of metabolic behavior in a relatively simple single cell or aggregation of such, rather than in a more complex organization of varied types of cells such as make up the familiar organs and tissues. One reason why the study of independent cellular performance has not been more vigorously prosecuted hitherto rests in the circumstance that there are comparatively few instances of detached simple cells available for direct experimentation or critical observation. Bacteria furnish an opportunity for the investigation of unicellular organisms with considerable ease. They differ, it is true, in a number of important directions from the cells of more complex individuals. Bacterial cells have no morphologic nucleus, although they contain nuclear material; and they divide directly by fission instead of indirectly by mitosis. Nevertheless these incidental distinctions need not stop us from considering some of the fundamental operations of both plant and animal cells in so far as they are manifested in the bacteria, the very rapid growth of which is an advantage in the direction of magnifying by reduplication the processes under consideration.

Impressed by such considerations, Kendall, Day and Walker[1] of the Northwestern University Medical School Department of Bacteriology have succeeded in demonstrating that bacterial metabolism and human cellular metabolism have certain fundamental features in common. Precisely as physiologists have long pointed out that carbohydrates spare proteins in the metabolism of the higher animals, it now appears that utilizable carbohydrates protect proteins to a very considerable degree in the case of bacteria.[2] In man this is shown by the more favorable nitrogen balance when carbohydrate is substituted liberally in the ration. In the unicellular bacteria ammonia formation can be taken as the index of proteolysis; for in them ammonia as a rule represents the final step in the degradation of the proteins, there being no available energy in it. The experiments of the Northwestern University investigators with a variety of strains indicate clearly that when bacteria are offered a choice

1. Kendall, A. I., Day, A. A., and Walker, A. W.: Studies in Bacterial Metabolism, Jour. Am. Chem. Soc., 1913, xxxv, 1201.

2. Kendall, A. I., and Farmer, C. J.: Studies in Bacterial Metabolism, Jour. Biol. Chem., 1912, xii, 13.

between utilizable carbohydrates and utilizable proteins less ammonia is formed than when sugar-free mediums are employed. Of course all organisms inevitably require a minimal amount of nitrogenous matter for purely structural purposes. But leaving this feature aside, these studies confirm on the unicellular forms the well-attested physiologic fact that the energy of carbohydrates is more readily utilized than that of protein. To this extent, at least, all cells investigated seem to have certain biochemical characteristics in common.

Current Comment

ADVERTISING THE FRIEDMANN "CURE"

Last week we told our readers that the American Medical Association had been sued by one J. J. Meyer of New York and Milwaukee for $100,000 for the articles it had published regarding the Friedmann "cure." This week two more suits have been entered against the Association apparently for the same articles. Each suit is for $100,000, one being brought under the name of Dr. T. L. Hein of New York City, the other under the name of Dr. J. S. Waterman of Algonquin, N. Y. The alleged libelous articles did not mention the names of either Waterman or Hein. Apparently these gentlemen feel that THE JOURNAL'S strictures on the exploitation of the Friedmann "cure" apply to them individually. It is fair to infer that they have put on the cap and decided that it fits. In each of the three suits ex-politician David S. Rose, "western representative" of the Friedmann concern, appears as attorney for the plaintiffs! When *Collier's* published its series of articles on "The Great American Fraud," some of the "patent-medicine" fakers started libel suits against the magazine. Every few months technical moves were made by the lawyers. With equal regularity items of "tainted news" appeared in those newspapers which catered to the "patent-medicine" interests, leaving with the careless reader the impression that the fakers had won their suits. Possibly it may be the intention of the Friedmann concern to play the same game in the present case. We may expect, from now on, that every week or so a new suit will be entered against the Association by others in the "Friedmann institute" business, each for $100,000, and each with David S. Rose as attorney. It remains to be seen whether any of these suits will be brought to trial. They may be but incidents in the advertising campaign of the disgraceful exploitation of the Friedmann "cure." We do not know of any cheaper way of getting into the newspaper than to file libel suits!

LATE RESULTS OF LUES

Now that the interest of the public concerning various sexual diseases, particularly syphilis, has been aroused, it is well to be able to place before it exact figures concerning the ultimate results of this disease rather than to hurl invective and paint imaginary horrors. Indeed, a cold analysis of such late results shows a picture as bad as that painted by writers on this subject, if not worse. A reference to the literature shows many reports, a few of which have analyzed a material consisting of large numbers of cases. Thus Pick and Bandler[1] studied 2,067 cases. Of these, sixty-four patients, or 3.1 per cent., died of tuberculosis; thirty-five patients, or 1.5 per cent., died of diseases of the nervous system; 0.6 per cent. died of liver and kidney diseases; 0.3 per cent. died from suicide and two of carcinoma. More recently Mattauschek and Pilcz[2] have analyzed the late results in 4,134 cases of lues occurring among officers in the Austrian army from 1880 to 1900. Up to Jan. 1, 1912, there was a total mortality of 546. The cause of death was ascertained in 508 of these cases. In 147 death was due to a secondary tuberculosis and in 83 to suicide; 17 patients died from aortic aneurysms and 101 of cardiovascular diseases, including myocardial degeneration and arteriosclerotic changes. Syphilis was the direct cause of death in 20 cases and produced permanent disability in 20 others. There were 91 deaths due to diseases of the nervous system, 17 to kidney disturbances and 12 to diseases of the liver. Of the remaining 3,588 patients, 198 have progressive paralysis, 113 are tabetic and 132 have developed cerebrospinal manifestations of syphilis, of whom 80 are insane. There were, therefore, 14.64 per cent. who have succumbed to the effects of their infection or are chronic invalids. It seems hardly worth while to attempt to draw conclusions from the facts and figures here presented. Their awful immensity is in itself potent to teach. These men, as officers in the Austrian army, are called by the authors "sexually enlightened"; but the enlightenment evidently did not portray the fearful dangers to which syphilis exposes its victims in such a manner as to deter them from exposing themselves to infection. Were it not for the fact that even among a large number of medical men, the definite causal relationship between progressive paralysis, tabes and other manifestations is not understood, it would seem almost incredible that these officers should not have known of the terrible power of syphilis to destroy. Of great interest, of course, will be similar observations made in another decade which will show the influence of newer methods of treatment.

INTRAMUSCULAR VERSUS SUBCUTANEOUS INJECTIONS

We are reminded by a recently published review[3] of the marked change of opinion which has come about of late in respect to the comparative efficiency of subcutaneous and intramuscular injections in the administration of therapeutic agents. Deep or intramuscular injections have been practiced by physicians for many years; not, however, in the belief that they afforded a more prompt mode of drug absorption, but rather on the supposition that the formation of abscesses was thereby more readily averted. It remained for Meltzer and Auer to demonstrate conclusively that the effects of active drugs appear earlier and with greater intensity after intramuscular injections than after subcutaneous injections.[4] Pointing

1. Pick and Bandler: Arch. f. Dermat., 1910, ci, 55.
2. Mattauschek and Pilcz: Med. Klin. 1913, ix, 1544.
3. Kleiner, I. S., and Meltzer, S. J.: The Relation of the Rate of Absorption of Adrenalin to its Glycosuric and Diuretic Effects, Jour. Exper. Med., 1913, xviii, 190.
4. Meltzer, S. J., and Auer, J.: Jour. Exper. Med., 1905, vii, 59; 1910, xii, 34.

in the same direction is the fact that doses ineffective by the latter mode of introduction may often exert their characteristic effect when injected intramuscularly. This is especially true when a certain concentration of active substance is called for in the circulation to induce the awaited result. Eggleston and Hatcher[5] found that for intramuscular injections the minimum dose of apomorphin to produce emetic action is half of that which provokes a similar effect on subcutaneous injection. Morgenroth and Levy[6] make the assertion in relation to the absorption of diphtheria antitoxin that the intramuscular injection of a small dose of antitoxin together with a fatal dose of toxin prevented even induration at the site of the injection, while a much larger dose of antitoxin administered subcutaneously (again with a fatal dose of toxin) was incapable of preventing the early death of the animals tested. To quote Meltzer's conclusion, it is now quite safely established that active substances are pharmacologically more effective, that is, manifest their effects earlier and with greater intensity, when administered by intramuscular than by subcutaneous injection.

WORK OF THE COMMISSION ON ELECTRIC SHOCK

Late in 1911, the president of the National Electric Light Association asked the cooperation of the American Medical Association in establishing a commission to investigate the subject of electric shock and to formulate a standard chart for the use of workmen and others for reviving persons injured by electric currents. The matter was referred to and taken up by the Council on Health and Public Instruction. After considerable correspondence and discussion, a joint commission was appointed consisting of representatives named by the National Electric Light Association, the American Institute of Electrical Engineers and the American Medical Association. After devoting nearly a year to an investigation of the entire subject, the commission, which consisted of physicians, surgeons and electrical engineers,[7] made a report and prepared a chart and handbook of instructions as to the best methods of resuscitation from electric shock. The report appeared in the *Proceedings* of the National Electric Light Association. The handbook and chart were published by the *Electrical World* in a form suitable for distribution to workmen and for display in factories, power-houses and other places in which high-power electric currents are encountered. The need for these publications was at once evident. Railways and industrial corporations asked for large numbers of copies or for permission to reprint the rules, which was in all cases readily given. A number of government boards and state boards also reprinted the chart. The government of Canada has adopted the rules officially and has called the attention of all Canadian railways to them. Requests have been received for copies in Spanish, German, French, Italian, Japanese and Magyar, and authority for reprinting the rules in these languages has been given. The National Electric Light Association itself has distributed over a hundred thousand copies. While an exact estimate is impossible, it is probable that the rules have been reprinted either in full or in abstract about five million times, and the work is still going on. At the last annual meeting of the National Electric Light Association the following resolution was unanimously adopted:

> WHEREAS, The association has accomplished a most creditable piece of humanitarian work in the issuance of its rules on resuscitation from electric shock used throughout the world and approved formally by other industries, the national government and state boards: Therefore, be it
>
> *Resolved*, That the thanks of this association be extended to the Medical Commission for its splendid results, and also to the American Medical Association, without whose active cooperation these laudable results could never have been achieved.

The work of this commission is monumental and its effects will be wide-spread. It is an excellent illustration of the valuable results which can be secured through practical cooperation between the medical profession and enlightened business men for the saving of life and the prevention of accidents.

THE FATE OF COCAIN IN THE BODY

Not long ago we called attention to the need of revision of some of the inherited traditions and current views respecting the fate of various alkaloids in the body, instancing the example of morphin which has long been supposed not to be excreted through the kidneys to any noteworthy extent.[1] Some of the prevailing conclusions in regard to the behavior of cocain appear to be equally in need of amendment in the light of up-to-date information. When it was first reported that subcutaneous administration of this alkaloid was not followed by its reappearance in the urine, this finding taken in connection with some observations of a different type made it seem plausible to assume that cocain may be destroyed in large measure by contact with animal tissues. As a matter of fact, newer experiments conducted in the pharmacologic institute of the University of Berlin[2] bring evidence that cocain may actually be excreted in decidedly large proportions by the kidneys. At first, in any period of frequent administration of the alkaloid, a tendency toward cumulative manifestations may arise; but the proportionate daily output increases with the use of the drug. According to these newest studies of Rifâtwachdani even prolonged contact with living tissues does not appear to induce a destruction of cocain. For the closely related derivative ecgonin the kidneys have likewise been demonstrated to afford an effective path of excretion.

5. Eggleston, C., and Hatcher, R. A.: Jour. Pharmacol. Exper. Therap., 1911-1912, iii, 551.

6. Morgenroth, J., and Levy, R.: Ztschr. f. Hyg. u. Infectionskrankh., 1912, lxx, 69.

7. The commission consists of Dr. Walter B. Cannon, Harvard Medical School, Boston, chairman; nominated by the American Medical Association, Dr. Yandell Henderson, Yale University, New Haven, Conn.; Dr. George W. Crile, Cleveland; Dr. S. J. Meltzer, Rockefeller Institute, New York; nominated by the National Electric Light Association, Dr. Edward A. Spitzka, Jefferson Medical College, Philadelphia; Mr. W. C. L. Eglin, Philadelphia Electric Company, Philadelphia; nominated by the American Institute of Electrical Engineers, Prof. Elihu Thompson, Harvard University, Dr. Arthur E. Kennelly, Lynn, Mass.; secretary, elected by the committee, Mr. W. D. Weaver, editor, Electrical World, New York.

1. See The Excretion of Morphin, Editorial, THE JOURNAL A. M. A., Sept. 20, 1913, p. 972.

2. Rifâtwachdani, S.: Das Schicksal des Cocains und Ekgonins im Organismus, Biochem. Ztschr., 1913, liv, 83.

Medical News

ARKANSAS

Emergency Hospital.—The board of managers of the Missouri Pacific and Iron Mountain Employees' Hospital Association has authorized the erection of an emergency hospital at Argenita, across the river from Little Rock. It will provide for emergency treatment of the sick and injured employees of the shops and railroad yards.

Personal.—Dr. Verne R. Stover, Little Rock, has resigned as superintendent of the city hospital, to become medical director of the St. James Hospital at Anking, China. Dr. J. B. Dooley has been named to succeed Dr. Stover. Dr. W. M. McRae has succeeded Dr. Dooley as district physician.——Dr. Jesse S. Rinehart has been appointed city health officer at Camden.——Dr. W. G. Hodges of Social Hill has been appointed physician for the Malvern and Camden Railway.

State Hygienic Laboratory.—The laboratory of the newly created State Board of Health of Arkansas, under the direction of Dr. Morgan Smith, secretary, is now ready, at Little Rock, for making laboratory tests required by physicians throughout the state. Instructions have been sent out as to the manner in which specimens should be sent in for examination and stating what work the state board is prepared to do in its laboratory. Among the activities of the board is the establishment of a state health car to tour the state for the instruction of the people in preventive medicine. The car is to be supported partially by voluntary subscriptions.

CALIFORNIA

Personal.—Dr. Max Morse, Berkeley, has been appointed instructor in physiology of the medical department of the University of California.

New Hospital.—Plans have been completed for the erection of a five-story and basement reinforced concrete hospital building in Los Angeles for the Methodist Hospital Association. The cost of the building is estimated at $100,000.—— The French Hospital Association of Los Angeles is also to erect a three-story hospital at the corner of College and Castelar Streets.

New State Medical Examining Board.—October 10, Governor Johnson appointed ten members of the state medical examining board under the law passed by the last legislature. Of these men, five are of the regular school, two osteopaths, two homeopaths and one eclectic. The men appointed are as follows: Dr. Harry E. Anderson, San Francisco; Dr. William R. Molony, Los Angeles; Dr. S. H. Buteau, Oakland; Dr. Frederick, F. Gundrum, Sacramento; Dr. H. Clifford Loos, San Diego; Dr. D. L. Tasker, Los Angeles; Dr. W. W. Vanderburgh, San Francisco; Dr. Charles B. Pinkham, San Francisco; Dr. Robert A. Campbell, Los Angeles; Dr. H. V. Brown, Los Angeles.

ILLINOIS

Child Welfare Exhibit.—Peoria had its annual Child Welfare convention and exhibit, beginning October 27. Four thousand dollars were spent on the exhibit which surpassed that of former exhibits. The local management had the support and encouragement of Dr. Julia Lathrop, of the National Child Welfare Bureau and of the Russell Sage Foundation.

Names New Men on State Board.—Governor Dunne on October 28 appointed the following members of the State Board of Health: John A. Robison, Chicago, to succeed Dr. Henry Richings, Rockford, term expired; Dr. Tullis B. Lewis, Hammond, vice Dr. Perry H. Wessel, Moline; Dr. Robert D. Luster, vice Dr. Ralph E. Niedringhaus, Granite City, and Dr. Adam Szwajkart, Chicago, to succeed Dr. Charles J. Boswell, Mounds.

To Prevent Lake Pollution.—Dr. R. B. Stolp, president of the village of Kenilworth, has been instructed by the village board to commence proceedings to restrain the cities and villages of the North Shore, from polluting the waters of Lake Michigan from which Kenilworth obtains its water supply. Waukegan and Kenosha are the principal towns complained against. The action is to be brought in the United States court. The problem of the pollution of the water supply of the great population in Chicago and its neighborhood is one that must soon be met.

Personal.—Dr. Frank Davenport, Rock Island, who has been in the service of the American Smelting and Refining Co., in Mexico, has returned to the United States after having many interesting experiences in connection with the revolution in that country.——Dr. H. E. Johnson, Bloomington, will spend the winter at his home in Crescent City, Florida.——Dr. Wilcox, Amboy, after a protracted illness in the hospital at Dixon, has returned to his practice.——Dr. H. G. Schmidt, Elgin, has returned from the seat of war at Torreon, Mexico. ——Dr. George F. Tyson, Evanston, has returned from a visit to Scotland.——Dr. James H. Shepperd, Peoria, was operated on for appendicitis at the Proctor Hospital, October 18.——Dr. J. S. Adsit, Danville, has been elected president of the State Medical Society.——Dr. L. B. Jolley, North Chicago, and Dr. V. J. Cokenour, Joliet, met with similar accidents in the breaking of their arms while cranking their automobiles.——Dr. T. D. Doan, Scottville, has resumed practice after spending nine months in the Modern Woodmen Sanatorium in Colorado.

Chicago

Personal.—Dr. Liston H. Montgomery has been appointed surgeon of the Eastern Division of the Chicago Great Western Railroad.——Dr. Clarence H. Wall, police ambulance surgeon, operated on for hernia October 21, is recovering rapidly.

War on Fake Medical Museums.—Chicago has begun war on the fake medical museums in the city, chiefly on South State Street. The health department has obtained warrants against the promoters of two of these museums and they have been closed.

Sanatorium for Advanced Tuberculosis.—The cornerstone has been laid of a sanatorium for advanced cases of tuberculosis, located at Fiftieth and Belmont Avenue. The structure is to cost $50.000 and is being promoted by the Jewish Consumptives' Relief Society. One hundred patients will be cared for. Dr. Theo. B. Sachs is to be the physician in charge.

IOWA

Tri-County Medical Society.—A tri-county medical society, including Monroe, Marion and Mahaska counties, was organized at Albia early in October with the following officers: president, Dr. Ernest C. McClure, Bussey, and secretary, Dr. Taylor R. Jackson, Albia.

Second District Medical Society.—At the meeting of the Second District Medical Society at Davenport, October 14, Dr. F. H. Little, Muscatine, was elected president; Dr. C. P. Howard, Iowa City, and Dr. L. B. Carson, Maquoketa, vice-presidents, and Dr. J. V. Littig, Davenport, secretary-treasurer. The 1914 meeting is to be held at Davenport.

Medical Society Elections.—The Council Bluffs Medical Society has elected the following officers: president, Dr. W. P. Hombach; vice-president, Dr. L. L. Henninger; secretary, Dr. John S. McAtee; treasurer, Dr. F. W. Dean; board of censors, Drs. A. V. Hennessy, V. S. Treynor and J. H. Cole.——At the meeting of the Benton County Medical Association at Cedar Rapids, the following officers were elected: president, Dr. G. A. Wagner, Van Horn; vice-president, Dr. J. E. Luckey, Vinton; secretary-treasurer, Dr. Theodore L. Chadbourne, Vinton.

Personal.—Dr. William Jepson, head of the University College of Medicine, Iowa City, has resigned. Dr. Jepson resides in Sioux City. Dr. W. R. Whiteis of Iowa City has been appointed to succeed him.——Dr. E. J. Walsh, Davenport, has returned from a trip to Europe.——Dr. C. C. Smead of Newton has had a stroke of paralysis.——Dr. Bert Joynt, Emmetsburg, will go to Vienna for study.——Dr. Henry C. Stanclift, Mt. Vernon, has returned from a six months' visit to England. ——Dr. E. C. Ayers of Lorimer had his arm broken in an automobile accident while on a visit at Geneseo, Ill.——Dr. W. O. McDowell of Grundy Center was recently operated on at Davenport for appendicitis.

Campaign for Public Health.—Prof. L. W. Dean, Iowa City, of the University of Iowa Medical College, and president of the Iowa State Medical Society, has appointed a state council on public health education, consisting of the following members: Dr. M. M. Dolding, Cherokee; Dr. Henry Albert, Iowa City, state bacteriologist; Dr. Lenna L. Means, Des Moines; Dr. Jeannette Throckmorton, Chariton, and Dr. Paul E. Gardner, New Hampton. Subcommittees are to be appointed in the different counties throughout the state, from various civic, commercial and other bodies, who are to be asked to cooperate in a general campaign for health improvement. Subjects have been assigned which will be discussed in various places during the year. Among them are the fly and the mosquito, public school questions, the normal child, and tuberculosis. The Council on Public Health Education of the American Medical Association will also provide speakers for the campaign in Iowa.

MARYLAND

Educational Campaign.—An educational campaign for social hygiene is to be undertaken by the Maryland Society for Social Hygiene, and at a meeting held recently an educational committee was appointed to report on plans for placing the matter in an intelligible and dignified way before the schoolchildren and the general public.

Personal.—Sir William Osler has accepted an invitation to deliver the principal address at the opening of the James Buchanan Brady Urological Clinic.——Dr. Henry Barton Jacobs attended the formal opening of the International Tuberculosis Conference in Berlin, as a delegate from America. ——Dr. Brice Goldsborough, who was recently a patient at Dr. Howard A. Kelly's Sanitarium, has recovered and resumed his practice.

New School for Blind.—The Maryland School for the Blind at Overlea was dedicated during the past week with elaborate exercises and in the presence of noted educators of the blind from other states. The Maryland School for the Blind has attracted considerable attention because of being the first to adopt the modern cottage system of housing the pupils instead of the old dormitory system. There are four cottages, each with accommodations for thirty, three or four teachers and a house mother.

Increased Appropriation Refused.—The Baltimore hospitals, which asked for an increased per capita of 50 cents per patient, have been refused by the Board of Estimates. For many months there has been a movement on foot to have this raised to $1, the contention of the hospitals being that they were suffering a loss under the present arrangement. At the present time there are eleven hospitals under contract with the city to care for patients who are turned over to them either by representatives of the police department or through some branch of the city charities.

MINNESOTA

Lectures on Hygiene.—Members of the State Board of Health will give a series of twenty lectures on hygiene to the students of the medical department of the university, under the direction of Dr. R. H. Mullin, Minneapolis, of the laboratory division.

Reporting Infectious Diseases.—The State Board of Health has recently made a regulation requiring the placarding of houses in which persons with tuberculosis live. This is to be enforced only when proper precautions are not taken by the patients and the inmates of such houses. Cards are also to be placed on houses in which there are cases of whooping-cough. Teachers, lodging-house managers, managers of workmen's camps, etc., are required to report cases of sore eyes, with the idea of preventing the spread of trachoma.——Dr. J. J. Kinyoun of the U. S. Public Health Service is reported as having declared that Minnesota should have a leper hospital. Fourteen cases of leprosy have been found in the state.

Personal.—Dr. C. O. Merica, superintendent of the State Training School for Boys, in Red Wing, has resigned, to take effect Jan. 1, 1914. Dr. J. F. Fulton, assistant superintendent, has become acting head of the school.——Dr. R. F. Goodwin of Minneapolis was injured in an automobile accident.—— Dr. W. M. Smith of Red Wing was elected vice-president of the Minnesota State Sanitary Conference at Minneapolis. ——Dr. A. E. Spalding of Luverne was elected president of the State Medical Society. He is also a member of the board of state censors. The president of the state society is selected from Minneapolis one year, from St. Paul the next year, and each third year the chairman is selected from the state outside of those two cities.

NEBRASKA

Alumni Meeting.—The fourth annual clinical alumni week of the College of Medicine of the University of Nebraska was held in Omaha October 13 to 18. An interesting scientific and social program was provided.

Personal.—Dr. J. P. Lord, Omaha, has returned after spending the summer in Europe.——Dr. G. Davis, York, has been appointed by the board of control as pathologist at the Hastings Asylum.——Dr. J. H. Vance, Omaha, was recently operated on at Rochester for gall-stones.

New University Medical School. — The University of Nebraska College of Medicine has been removed from Lincoln to Omaha. A new building has been provided for the school, which cost $115,000, and was dedicated in September. It is to be the aim of the college to be to the people of the state what the agricultural college has been to the agriculturists of the state. On the program of the college work is a series of popular lectures on medical subjects and the maintenance of a free dispensary. Seven new laboratory instructors and a clinical staff of four physicians of Omaha have been added to the faculty of the Omaha College of Medicine, which up to last year gave the last two years of the medical work in the university course. The faculty now number fifty-five in all.

NEW YORK

Court Interprets Sanitary Code.—The Sanitary Code of New York City which forbids any milk dealer to receive or have in his possession unclean milk bottles has been upheld by the court of appeals, but the court allows a reasonable time in which to clean them. The court states that this section of the sanitary code is constitutional and that its effect is to prohibit a person who receives unclean milk bottles from keeping them unclean for any length of time.——A verdict of $16,800 has been directed by the supreme court in an action brought by the state of New York against two New York milk dealers, who were accused of skimming the cream from 168 bottles of milk. In February, 1911, a similar case was tried and resulted in a verdict of $50 a can on 336 cans.

New York City

Lectures in Genito-Urinary Diseases.—A series of clinical lectures and demonstrations on genito-urinary and venereal diseases, will be given by Dr. Bierhoff every Monday evening at 8:30 o'clock at the West Side German Dispensary, beginning Nov. 3, 1913. The course is free to physicians and advanced students in medicine.

The Bulkley Lectures.—In accordance with his usual custom Dr. L. Duncan Bulkley will give a series of clinical lectures on diseases of the skin at the New York Skin and Cancer Hospital on Wednesday afternoons, beginning Nov. 15, 1913, at 4:15 o'clock. These lectures are free to the medical profession on presentation of their professional cards.

Whooping-Cough Camp.—The *Helen C. Juilliard*, the Floating Hospital of St. John's Guild, is to be used during the winter months as a whooping-cough camp. This will not interfere with the usual summer work of the Floating Hospital. One of the features of the work will be the instruction of the mothers in the care of their children at home.

Gifts to Columbia.—At a meeting of the trustees of Columbia University on October 6, it was announced that the family of the late W. Bayard Cutting had given $200,000 as a fund for the maintenance of traveling fellowships which will be open to graduates of the university, including the College of Physicians and Surgeons. It was announced at the same time that Mr. Clarence H. Mackay had given $2,500 for surgical research and that an anonymous donor had given $1,000 for salaries in the department of physiology.

NORTH CAROLINA

Whole-Time County Health Officers.—Of the 100 counties of North Carolina, ten have appointed health officers who devote their entire time to the work, receiving salaries of from $1,800 to $2,500. At a conference of these officers held recently in Raleigh, with a view to better instruction in their duties and a standardization of their work, the following were present: Drs. A. N. Cox, Columbus County; Archibald Cheatham, Durham, Durham County; W. M. Jones, Guilford County; H. H. Utley, Benson, Johnson County; J. Strickland, Nashville, Forsythe County; Samuel Ellington, Wentworth, Rockingham County; B. W. Page, Lumbarton, Robeson County; G. M. Cooper, Clinton, Sampson County; D. E. Sevier, Asheville, Buncombe County, and C. T. Nesbitt, Wilmington, New Hanover County.

OHIO

Cincinnati

Academy of Medicine.—Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, read a very excellent paper before the academy, entitled "The Hospital Superintendent." It was discussed by Drs. Oliver, Geier and Holmes.—— Dr. Charles A. L. Reed, president of the Academy of Medicine, has been officially advised that the invitation extended by the academy to the Mississippi Valley Medical Association to meet in this city in October, 1914, was unanimously accepted at the session just concluded in New Orleans.

Personal.—Dr. Gustav Zinke, for twenty-five years past the president of the medical staff of the German Deaconess Hospital, has resigned his position, Dr. Max Koehler having

been elected as his successor. Dr. Zinke will retain the distinction of honorary president.——Dr. J. H. Landis, city health officer, has been elected to membership in the New York Milk Commission, a national organization whose purpose is to create a demand for pure milk.——Dr. E. W. Mitchell has been chosen to occupy the chair of internal medicine in the medical department of the university, a vacancy caused by the death of the late Dr. Frederick Forchheimer.——Dr. O. P. Geier, City Superintendent of Charities and Correction, has been elected vice-president of the Ohio Child Welfare League.

PENNSYLVANIA

Insane Fund.—The city treasurer of Philadelphia paid to the state treasurer $18,961.19 for the care by the state, of the insane of the County of Philadelphia, for the year ending May 31.

Personal.—Dr. C. Johnstonebach of Bethlehem, and Dr. William A. Stewart of Pittsburgh, were appointed by Governor Tener, October 20, as members of the Bureau of Medical Education and Licensure.

University Appointments.—The following new appointments to the faculty of the School of Medicine, University of Pittsburgh, have been made: Dr. W. E. Gardner, assistant demonstrator in anatomy; Dr. J. W. McMeans, assistant in clinical pathology and demonstrator in pathology; Dr. J. C. Irwin, instructor in obstetrics; Dr. R. J. Cary, demonstrator in medicine; Dr. Arthur Miltenberger, assistant demonstrator in obstetrics; Dr. J. H. Seipel, assistant demonstrator in obstetrics, and Mr. Orville J. Walker, assistant in physiology and pharmacology. The following increases in rank have likewise been provided for: Dr. Chris Gardner, from assistant demonstrator to demonstrator in anatomy; Dr. W. L. Croll, from instructor to assistant professor in obstetrics.

Vision Conservation Society Formed.—Acting under auspices of the commission appointed by the Medical Society of the State of Pennsylvania, laymen and doctors have formed the Pennsylvania Society for the Conservation of Vision. Aroused by learning that this country has 100,000 blind people, an active campaign is under way against ophthalmia neonatorum, needless eye injuries in the trades, trachoma, wood alcohol, wrong lighting of buildings and like causes. In addition to a large number of distinguished laymen, acting as advisory members, the Commission on Conservation of Vision includes Dr. Wm. Campbell Posey, Wills Eye Hospital, Philadelphia, chairman; Dr. Wm. W. Blair, University of Pittsburgh, Pittsburgh, Pa.; Dr. Clarence P. Franklin, Philadelphia; Dr. C. M. Harris, Johnstown, Pa.; Dr. Edw. B. Heckel, Pittsburgh, Pa.; Dr. T. B. Holloway, University Hospital, Philadelphia, secretary; Dr. Wendell Reber, Temple University, Philadelphia; Dr. Edward Stieren, Pittsburgh, Pa.; Dr. Lewis H. Taylor, president of State Society, Wilkes-Barre, Pa.; Dr. Wm. Zentmayer, Wills Eye Hospital, Philadelphia; Dr. Samuel G. Dixon, Commissioner of Health of the State of Pennsylvania, Harrisburg, Pa., honorary chairman. Membership, costing $1 a year, is asked from all persons, and the secretary may be written to direct.

Philadelphia

Hospital Cornerstone Laid.—The cornerstone laying of the new Jewish Maternity Hospital at Fifth and Spruce Streets, was celebrated on October 20. The hospital is being erected by the Jewish Maternity Association, which was founded in 1884, and has cared for 7,000 mothers in this city as well as 5,000 mothers at seaside resorts. The new building will cost $60,000, and it will be equipped in the most modern and complete manner.

Jefferson Hospital Section of Diseases of the Chest.—The trustees of Jefferson Medical College announce that the new Department for Diseases of the Chest is ready for occupancy. The new department was made possible by the purchase of the buildings formerly occupied by the Phipps Institute and located at 236-238 Pine Street. These buildings have, at a cost of $20,000, been completely renovated and modernized and every facility afforded for the efficient care of patients suffering with diseases of the chest.

Personal.—Dr. J. Torrance Rugh, associate in orthopedic surgery, in Jefferson Hospital, has been appointed orthopedic surgeon to the Philadelphia General Hospital, to succeed Dr. H. Augusta Wilson, resigned.——Dr. Julius Blechschmidt has been appointed chief clinical assistant in the Pediatric Department, Jefferson Medical College Hospital.——Dr. Frances Heath, of the Woman's Medical College, of this city, sailed for Pekin, China, October 15. She will become an instructor in anatomy and surgery in the Union Medical College of Pekin.——Dr. W. D. Robinson has been elected a member of the Board of Directors of the Child Federal of this city.

VIRGINIA

State Society Meeting.—The annual meeting of the Medical Society of Virginia was held in Lynchburg, October 21-24, and the following officers were elected: president, Dr. Stephen Harnsberger, Catlett; vice-presidents, Drs. R. C. Bryan, Richmond; John Staige Davis, University, and B. R. Gary, Newport News; delegates to the American Medical Association, Drs. H. E. Anderson, Farmville, and Kirkland Ruffin, Norfolk; alternates, Drs. R. M. Taliaferro, Lynchburg, and Lomax Gwathmey, Norfolk, and councilors-at-large, Drs. H. Stuart McLean, Richmond, and George J. Tompkins, Lynchburg.

GENERAL

The Eustachius Celebration.—The town of San Severino in Italy was the scene in September of a gathering of scientists to honor the quadricentennial of Bartolommeo Eustachius, the great anatomist of the sixteenth century. G. Bilancioni reported several new finds in the numerous works of Eustachius, demonstrating his priority in certain other discoveries not generally credited to him.

Mississippi Valley Medical Association.—The thirty-ninth annual meeting of the Mississippi Valley Medical Association was held in New Orleans, October 23 to 25, under the presidency of Dr. Albert E. Sterne, Indianapolis. Cincinnati was selected as the place of meeting for 1914, and the following officers were elected: president, Dr. D'Orsay Hecht, Chicago; vice-presidents, Drs. W. W. Butterworth, New Orleans, and Willard J. Stone, Toledo, Ohio; secretary, Dr. Henry Enos Tuley, Louisville, Ky. (reelected), and treasurer, Dr. S. C. Stanton, Chicago (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York City, $50,000; the House of Rest for Consumptives and the New York Association for Improving the Condition of the Poor, each $10,000, by the will of the late Herman Casper von Post.

Philadelphia Home for Incurables, for the endowment of a room in memory of Robert and Elizabeth Cresswell, $5,000; the Sanitarium for Sick Children and the Children's Country Week Association, Philadelphia, $500, by the will of the late Miss Elizabeth P. Cresswell.

Wills Eye Hospital, Philadelphia, $50, by the will of the late Thomas Seery.

Federation of Jewish Charities, New York City, $2,000; Jewish Seaside Home, and Jewish Day Nursery, both in New York City, $250 each, and Mt. Sinai Hospital, New York City, $200, by the will of the late Henry Jonas.

Johns Hopkins Medical School, Baltimore, $1,500,000; Barnard College, New York City, $200,000; Wellesley College, Wellesley, Mass., $200,000; Ripon College, Ripon, Wis., $50,000. These donations were announced October 24 by the General Education Board, founded by John D. Rockefeller, and are gifts by Mr. Rockefeller.

Formation of National Radium Institute.—Dr. Charles L. Parsons, chief of the Division of Mineral Technology, Bureau of Mines, has been authorized by the director of the Bureau of Mines to announce that a cooperative agreement has been entered into with the newly organized National Radium Institute whereby the bureau obtains the opportunity of a scientific and technological study of the mining and concentrating of carnotite ores and of the most efficient methods of obtaining radium vanadium and uranium therefrom, with a view to increased efficiency of production and the prevention of waste. The National Radium Institute was recently incorporated with the following officers: Howard A. Kelly of Baltimore, president; Curtis F. Burnam of Baltimore, vice-president; Archibald Douglas of New York, secretary and treasurer; James Douglas of New York, and E. J. Maloney of Wilmington, additional directors. The institute has obtained the right to mine twenty-seven claims in the Paradox Valley region, among which are some of the best mines in this richest radium-bearing region of the world. Under the agreement with the Bureau of Mines the technical operations of the mines and mill are to be guided by the scientific staff of the bureau. All processes, details of apparatus and plant and general information gained will be published for the benefit of the people. The institute is supplied with sufficient funds to carry out its plans. It has been formed for the special purpose of procuring enough radium to conduct extensive experiments in radium therapy with special reference to the curing of cancer.

Gift to Johns Hopkins.—The General Education Board, founded by John D. Rockefeller, has announced a gift of $1,500,000 to the medical school of Johns Hopkins University. It is to be known as the William H. Welch endowment for

education and clinical research, as a recognition of Dr. Welch's distinguished service to the cause of medical education in America. This is the greatest gift ever made by the board to a single institution of learning. The proposed plan of spending the money opens the way for a new era in medical science. Briefly it is this: To so reorganize the medical school as to pay out of the income from the gift such salaries to the men who occupy the chairs of medicine, surgery and pediatrics and to their assistants as will enable them wholly to drop their private practice and devote their entire time, ability and lives to the advancement of their particular branches. The departments which it affects are at present presided over by the following: professor of medicine, Dr. Lewellys F. Barker; professor of surgery, Dr. W. S. Halsted; professor of pediatrics, Dr. John Howland. The first problem confronting the trustees of the Hopkins University, which will administer the fund, will be to persuade the men now at the head of these departments to withdraw from the large practice which each has and accept the salary which the fund will afford. What this salary will be has not been determined, but judging from the income which will be derived from the fund it is speculated that $10,000 may be the sum offered to the heads of the three departments. About twenty physicians are affected. The plan takes in not only the heads of the departments, but also contemplates the appointment of associate professors and assistants. The Johns Hopkins University and the Johns Hopkins Hospital have been the recipients of many large gifts, besides the original gift of Johns Hopkins, for the establishment of the hospital, exclusive of the ground on which the hospital stands, amounting to $2,941,603.35.

CANADA

Flower Day Funds.—Violet and Rose day in Montreal, Saturday, October 18, held in aid of the Royal Edward Institute for the Tuberculous and the School for Cripple Children, netted $25,000 for those institutions. Two thousand women, girls and boys were engaged in the sale of the flowers.

Western Medical College.—The Western Medical College at London, Ontario, is now the medical faculty of the Western University of that city. The following officers have recently been elected: dean, Dr. H. A. MacCallum; registrar, Dr. W. E. Waugh; executive committee, Drs. H. A. MacCallum, Waugh, Hadley Williams, H. Meek, F. P. Drake and H. W. Hill.

Personal.—Dr. J. R. Oulton, Montreal, has been appointed superintendent of the Alexandra Hospital of that city.——Dr. Murray Leys, late superintendent of the Alexandra Hospital, Montreal, has left for six months' study in Europe.——Dr. Fred Marlow, Toronto, has been appointed associate professor of gynecology in the medical faculty of the University of Toronto.

Examinations by Dominion Medical Council.—At the first examinations of the Dominion Medical Council, held in Montreal, October 7, seventy-one candidates presented themselves. Of this number forty-four passed, eight were referred to the Council, having failed on two subjects, and nineteen were rejected. Most of the successful candidates were from the provinces of Ontario and Quebec; one from New Brunswick; one each from Alberta and British Columbia; and two from the United States.

Annual Meeting Canadian Hospital Association.—The annual meeting of the Canadian Hospital Association was held in the clinic hall of the new Toronto General Hospital, October 21, 22 and 23, under the presidency of Dr. H. A. Boyce, superintendent of the Kingston General Hospital. According to Dr. W. A. Young the sale of noxious drugs has increased very rapidly the past few years in Toronto, to such an extent as to demand an amendment to the Canadian criminal code to deal with offenders. The president's address dealt with every phase of hospital and humanitarian work, and was particularly scathing of the parsimonious conduct of boards of trustees who refused to send their superintendent to the annual meetings of the association, whence they would return to their duties with renewed vigor and new ideas as to hospital work and management. The association should do all in its power to prevent the distribution of literature which makes the young think they have disease, while patent medicines containing harmful ingredients should be restricted. Dr. Boyce also advocated the standardization of hospitals and the appointment of a government architect to criticize the plans of all hospitals before they were built. Dr. Thomas Howell, president of the American Hospital Association, submitted a paper which was read by Dr. E. H. Young, assistant superintendent of the Kingston Hospital. It dealt with points for inexperienced superintendents in purchasing, receiving and distributing supplies. He advised to buy goods of good quality on the cooperative plan. By this means the hospitals could gain much. That all hospitals should share in the public taxes on the same plane, with parks and libraries, seemed to be the general approved opinion of the conference. Dr. D. M. Robertson, superintendent of the Protestant General Hospital, Ottawa, told the gathering that eight years ago a plebiscite was taken in Ottawa on the question of raising a tax for the benefit of the hospitals of that city. It carried by three to one. The tax at first was a quarter mill, then a half and now it is three quarters. In addition the hospitals in Ottawa to-day receive more private subscriptions than they ever did. Dr. J. N. E. Brown, formerly superintendent of the Toronto General Hospital, and now superintendent of the Detroit General Hospital, gave a lantern lecture on the great hospitals of the world. He seemed to be in favor of the one-story pavilions with fifty to sixty acres of land alongside of fields and woods rather than hospitals overshadowed by skyscrapers. He hoped for the day when hospitals would not be pinched in money matters. Rev. A. S. Kavanagh, superintendent of the Methodist Episcopal Hospital, Brooklyn, N. Y., dealt with indispensable combination in hospital work. The nurse leaders, he said, were committed to the policy now that the training school must stand apart from the hospital. He thought they should hail with satisfaction the divorcing of the training school from the hospital, provided it was organized on the same basis as the medical school for the young men. The trade-union spirit of the nurses was open to criticism. Dr. John A. Hornsby, Chicago, did not think there was entire disinterested cooperation in the medical staffs of the hospitals. When the practice of having medical staff officers placed on a salary and giving their whole time to their work came into vogue, blessed would be the day for the sick man or child. The failure of several Ontario hospitals refusing to retain properly qualified dispensers came in for criticism. The association elected the following officers: president, Dr. E. H. Young, Kingston; treasurer, Miss Kate Mathieson, Toronto; secretary, Dr. W. J. Dobbie, superintendent of the Weston Sanatorium for Consumptives, Toronto (reelected).

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 18, 1913.

Exclusion of Immigrants by Australia on Medical Grounds

The Australian commonwealth has issued amended and extended regulations defining those liable to exclusion as "prohibited immigrants" on account of disease. The following are so defined: (1) any person not possessed of the prescribed certificate of health; (2) any idiot, imbecile, feeble-minded person or epileptic; (3) any person suffering from pulmonary tuberculosis, trachoma or any loathsome or dangerous communicable disease, either general or local; (4) any person suffering from any disease or mental or physical defect which, in the opinion of an officer, is liable to render the person concerned a charge on the public or on any public or charitable institution; (5) any person suffering from any disease, disability or disqualification in the following list: serious deformities or physical defects; insanity, an attack of insanity within five years of proposed emigration, or a history of two or more attacks of insanity or mental derangement at any time, or dementia; chronic alcoholism; senile decay; tuberculosis of the digestive tract, or the genito-urinary system, or of bones or joints; heart-disease with signs of heart failure; chronic bronchitis with complications; paralysis or other serious nervous affections; cancer or other malignant growths; chronic rheumatism, rheumatoid arthritis or rheumatic gout, or severe hernia. The prescribed medical certificate referred to above must be obtained from approved medical referees appointed by the government.

Exclusion of Immigrants by South Africa

In South Africa a series of regulations have also been issued prohibiting from admission immigrants suffering from certain diseases. Leprosy, trachoma, favus, frambesia, syphilis and scabies are declared loathsome diseases, bringing patients with these diseases under the category of prohibited immigrants. Persons suffering from tuberculosis may be allowed to land under a permit from the immigration officer, but these permits are to be issued only at the ports of Capetown and Durban and on the following conditions: the place of residence and the mode of transport thereto to be subject to the approval of the immigration officer; the immigrant

to report himself to the local health authority at his place of residence and to present himself for examination by the district surgeon or other approved medical practitioner whenever required; sleeping accommodation never to be shared with any other person, and regulations by the local health authority for preventing infection to others to be observed.

The Measurement of Mental Capacity

In a lecture delivered at University College on "Mental Energy," Spearman said that the whole of the earlier psychology, and a large part of it now, was devoted to quality of mind and not quantity. They were now turning their attention to quantity, and it was opening up a new sphere. It was possible now for every one to measure the amount of his or her mental energy. At present there was a great deal of discontent and class hatred. The lower classes complained that the upper classes obtained all the best jobs, and contended that they were quite as well equipped and that it was only their circumstances that kept them out. The upper classes, on the other hand, said that they were put there because they had more brains and were better able to do the work. But the day would come when there would be no question of persons' abilities. They would be measured to several decimal places long before they left school, and if the best positions were given to the persons with the largest amount of mental energy there could be no complaints as to other brains being more suitable.

Sir Almroth Wright on the Suffragette Movement

Sir Almroth Wright, of "opsonic" fame, has ventured into the political arena and published a book entitled "The Unexpurgated Case against Woman's Suffrage." He arraigns the whole feminist movement and bases his case on the essential inferiority of woman both intellectually and physically in comparison with man. Her claim to a vote he rejects on the ground that woman is insolvent, that is, has to be supported by man. He argues that the greater number of women who have independent incomes do not earn them but have derived them from men. He holds that nothing in the end would more certainly lead to war and revolt than the decline of the military spirit and loss of prestige which would inevitably follow if men admitted women into political copartnership. The woman voter would be pernicious to the state not only because she could not back her vote by physical force but also by reason of her intellectual defects. Women cannot recognize that the precepts of public morality are not inferior in obligation to those of egoism and domestic morality. They brush aside the ideals of abstract justice and truth in the interest of those they love. Sir Almroth Wright believes that the suffrage movement derives its impetus chiefly from offended *amour propre*. The modern girl is not taught anything about women's physical disability or the defects and limitations of the feminine mind.

The Position of Eugenics: Karl Pearson's Appeal

Karl Pearson has addressed an appeal to the *Times* on the position of eugenics as a science. He regards the current attitude of public opinion as at once disheartening and exasperating. The founder of the science, Sir Francis Galton, thought that progress toward increased race sufficiency could be made by two routes: (1) by the scientific study of heredity and environment as they bore on racial development, and (2) by a popular movement emphasizing the importance of these factors in national welfare, and the urging of their proper appreciation by legislators and social reformers. Several of those who were working on the subject differed from Galton as to the relative urgency of the two routes. They saw the danger that before the lines of the science were firmly drawn and substantial foundations laid the whole subject would be made ridiculous by the efforts of an uninstructed press to tickle the taste of a jaded public. This fear has been realized. The press now treats us to "eugenic" marriages, to "eugenic" babies, and to "eugenic" plays which have nothing whatever to do with the problem of race welfare; officials of eugenic societies submit to being interviewed with regard to well-advertised babies. Eugenics is rapidly developing into a topic for the poseur, the *Kongressbummler* and the paragraphist. Even eugenic publications and eugenic congresses are issuing statements with regard to such vitally important topics as insanity, mental defect or the influence of heredity and environment which are obviously or demonstrably incorrect. We have not yet nearly adequate knowledge on these topics. Years of patient work in medicosocial observation, in genetic experiment and in careful study of family history are needed before the laws of eugenics as a science can be dogmatically stated. When such dogmas are proclaimed in the name of eugenics as "at last it is possible to give definite advice to those about to marry or who do not wish to transmit their undesirable traits. Weakness in any trait should marry strength in that trait, and strength may marry weakness," we stand aghast at the evil worked by the rapid popularization of "eugenics" and recognize the certainty that a movement thus careless of its facts and vaunting in its conclusions must collapse. Pearson thinks that students of the science of race efficiency will be compelled more and more to drop that much-abused term and to class their work as the Germans have done, under the broad titles of race hygiene and genetics. Those who should have at heart the problem of race efficiency turn rather to the academic than the popular side of the movement. What is needed in this country, Pearson thinks, is in the first place knowledge, and this is to be obtained only by establishing in close connection with all our universities laboratories for the study of medicosocial statistics and for inquiries as to infant and child welfare, and institutes or farms for experimental breeding and for the study of experimental evolution.

PARIS LETTER

(*From Our Regular Correspondent*)

PARIS, Oct. 14, 1913.

Continuous Attacks of Angina Pectoris

At the Académie de médecine, which resumed its sessions October 7, Dr. Charles Fiessinger read an interesting paper on the "Prognosis and Treatment of Continuous Crises of Angina Pectoris," a subject on which the standard works generally give only vague information. These crises, which may be benign when the neuropathic element alone is the cause, on the contrary are very serious and frequently the cause of death when a renal, myocardic or aortic element is added. The fatal outcome may be avoided if care is taken to combat from the first hours the fatigue of the myocardium which these pains produce so easily. This is why one should avoid large doses of drugs. Small doses of morphin (2 mg. injections) every three hours with small doses of nitroglycerin (2 to 4 drops of alcoholic 1 per cent. solution two or three times a day) reinforced by the analgesic and tonic action of an ice-bag on the cardiac region will usually subdue the attack. A milk and water diet should be rigorously maintained, as well as absolute rest in bed. If the violence of the attack brings on cardiac failure (extrasystolic tachycardia, weakness of pulse) the use of theobromin (two powders, each 0.5 gm.) and injections of camphorated oil will ordinarily put the heart to right if the treatment with small doses of morphin and the applications of the ice-bag have been used from the first.

An Article by Paul Bourget on Professor Poncet

One of our most celebrated writers, Paul Bourget, has devoted some eloquent pages in the *Revue hebdomadaire* to the memory of Professor Poncet, whose death I mentioned in a previous letter (THE JOURNAL, Oct. 4, 1913, p. 1307). Bourget attempts to explain how this active surgeon became in his later years the pathologist to whom medicine owes the theory of tuberculous and inflammatory rheumatism—how the man of action became the man of reflection. There was always in Poncet this spirit of investigation which was not satisfied in a specialty, however brilliant it might be. This is shown by his researches on actinomycosis. But to devote himself to investigation in full maturity when circumstances and his own ability made of him without possible rivalry the first surgeon of the southeast of France—this was a most heroic resolution. Bourget believes that Poncet was impelled to take it by the legitimate and noble desire of a glory that might survive him. The destiny of great surgeons and great physicians who are only superior practitioners is somewhat pathetic in that nothing durable remains of their talent. What remains of Dupuytren, for example? An illustrious name, nothing more. Apropos of Trousseau, Lasègue, with a melancholy which he did not seek to hide, spoke of "actors, birds of passage like us." When the physician leaves behind him a discovery of permanent value in science, the case is otherwise. There were, no doubt, in the seventeenth century practitioners who surpassed William Harvey by renown and skill. Where is their work? What memory of them remains? Harvey, having discovered the laws of the circulation of the blood, is immortal. What the theory of irritation was for Broussais, that of the specificity of diseases for Bretonneau and Trousseau, that of the glands of internal secretion

for Brown-Séquard, that of hysteria for Charcot, the hypothesis of inflammatory tuberculosis was for Poncet. If he has not established it definitely, he has given it sufficient standing so that even his adversaries are obliged to recognize its great importance.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 19, 1913.

Personal

October 4, Surgeon-General Dr. Zunker, for many years physician for the Empress, celebrated his seventieth birthday.

October 4, the general staff surgeon of the Prussian Army, His Excellency v. Schjerning, celebrated his sixtieth birthday. This man, who has rendered important services in the matter of military sanitation and enjoys general respect on account of his personal qualities, was the object of a cordial ovation on the occasion of his celebration. The Emperor, also, with whom v. Schjerning is in close confidential relations, gave expression in a telegram to his congratulations and to his conviction that the sanitary corps of the army under the leadership of v. Schjerning would properly fulfil its high office.

October 5, Professor Quincke, who for a number of years has been in retirement, celebrated the fiftieth anniversary of his doctorate.

Death of Kutner

Prof. Robert Kutner, director of the Kaiserin Friedrich-Haus for medical postgraduate study, died October 5 after a short illness at the age of 46, as previously mentioned. Kutner devoted himself to the development of medical postgraduate education in Germany, and inasmuch as other countries copied the organization instituted by him, he performed important service even outside of Germany. In 1901 he founded with the cooperation of the Department of Education the Prussian central committee for postgraduate medical study, the one organization which combined all of the organizations already existing in Prussia for the same purpose and had as its object the extension of free courses and exercises over the entire state. Very soon there were formed in addition to the central committee, local committees in many universities and large cities, and even the academies for practical medicine in Cologne and Düsseldorf were included. Professor v. Bergmann promptly joined the central committee and accepted the presidency (since Bergmann's death Waldeyer is president). Kutner was general secretary.

In 1902 Kutner organized an exposition of appliances to aid in medical teaching and this formed the foundation for a museum, to house which a plan for a special building was started in 1903. In view of the great interest that the Empress Frederick had exhibited in all forms of medical postgraduate instruction, the Empress-Frederick foundation for medical postgraduate instruction was formed with the cooperation of the high financial interests and the building was constructed on the Luisenplatz. It was dedicated in 1906 in the presence of the entire imperial family. It constitutes an international object of interest in medical Berlin. In addition to a large and several small auditoriums, it contains a collection of teaching materials which has meanwhile very greatly increased, a remarkable collection of antique surgical instruments and an exhibition of "The Physician and Medicine in Art," collected by Professor Holländer. It contains besides a large permanent industrial exposition with reference to medicine.

Kutner was in charge of the building which then afforded him further headquarters for his later organization of the national committee for medical postgraduate instruction, at first with Renvers and after his death with Werner Körte as president, and finally for the international committee of which Waldeyer is president, and with which all civilized nations are connected. In both of these organizations Kutner was general secretary. In this capacity a few weeks ago he was engaged at the session of the international committee in London, and immediately after his return he was taken sick.

He was born in 1867 in Uckermünde, the son of a physician, and studied in Berlin, Kiel, and Freiburg and with the urologists Nitze, in Berlin, Dittel in Vienna, and Guyon in Paris. He was licensed in 1891 and settled in Berlin in 1892 as a urologist, and did good work in his specialty. He was one of the first to succeed in taking photographic views of the interior of body cavities, and in addition to a number of minor articles and the description of instruments invented by him, he wrote a monograph entitled "The Technic and Practical Importance of Asepsis for Treatment of Urinary Affections" (Die Handhabung und praktische Bedeutung der Asepsis für die Behandlung der Harnleiden), and the text-book on "The Instrumental Treatment of Urinary Affections" (Die instrumentelle Behandlung der Harnleiden). He founded and edited also the *Zeitschrift für ärztliche Fortbildung*, the official organ of the general postgraduate work.

Loeffler Takes Charge of Berlin Institute

Professor Loeffler, the hygienist of Greifswald, has succeeded Professor Gaffky as director of the Institut für Infektions-Krankheiten. With Gaffky the institute loses a scientist of international reputation, who has performed marked service in various fields of hygiene and bacteriology. He was born Feb. 17, 1850, at Hanover, and studied as a pupil of the Kaiser Wilhelm Academy for military education in Berlin, and received a physician's license in 1875. In 1880 he was assigned to the Imperial Health Office, and here Robert Koch incited him to his pioneer work on the causes of infectious diseases. Some years later he went as a member of the cholera expedition under the leadership of Koch to Egypt and India. During this expedition Koch, as is well known, discovered the germ of cholera. Together with Koch, he made the noted report on the work of this expedition.

When Koch in 1885 assumed the newly instituted professorship of hygiene in the Berlin University, Gaffky became his successor in the health office. Soon after he was appointed professor of hygiene at the University at Giessen, and in 1892 during the cholera epidemic he gave very successful assistance as the advisor of the authorities at Hamburg, and in 1897 he headed the imperial commission sent to India for the investigation of the plague. In 1904 he succeeded Robert Koch as head of the Institute for Infectious Diseases in Berlin. Gaffky took an active part in the development and progress of modern bacteriology and made valuable contributions on disinfection, on the most important infectious diseases, on sausage and meat poisoning, etc.

Like his predecessor, Loeffler was one of the earliest colaborers with Robert Koch, and is one of the most noted of living bacteriologists. He was born June 24, 1852, at Frankfort, a. O., where his father, a prominent army surgeon later the director of the Pepiniere (an army preparatory school) in Berlin, was then a regimental surgeon. After a short period of study at Würzburg, young Loeffler attended the Kaiser-Wilhelm Academy in Berlin, and after he received his license in 1875 was first an army surgeon at Hanover and later at Potsdam.

In 1879 he received an appointment to the Imperial Health Office in Berlin where he worked at first in the chemico-hygienic laboratory under Sell and Wolffhügel. A year later Robert Koch came to the health office and asked Loeffler to undertake work in his laboratory. This change decided his later course. He took an active part in the first work performed by Koch in the Health Office on infection and disinfection, and then took up special work on immunity. In 1881 he discovered a mouse bacillus against which he was able to immunize rabbits after a single infection. After work on the germ of glanders he discovered in 1882 the diphtheria bacillus and showed methods for its recognition and cultivation and thus laid the foundation for the exact diagnosis of diphtheria and the later antitoxin treatment of Behring. In 1884 he was appointed staff surgeon to the Kaiser-Wilhelms-Akademie where he continued his work as investigator. After he joined the Berlin faculty in 1886 as privat-docent for hygiene he was called to Greifswald in 1888 as professor of hygiene. Here in the course of years he published numerous articles on bacteriology and hygiene, and many times he received commissions from the government for the special investigation of epidemics.

He applied himself chiefly to an all-round investigation of infectious diseases in animals, and among other things he paid special attention to the foot-and-mouth disease. He was president of a commission for investigation of foot-and-mouth disease, and later published a method for protective vaccination. He discovered the bacillus of swine erysipelas and of swine fever, and again made his name known throughout the world when a typhus epidemic broke out in his laboratory among the mice which proved to be dangerous only for mice. He cultivated the germ of this epidemic and by feeding the germs to mice was able to accomplish their wholesale destruction. In consequence of this, the Greek government in 1892 summoned him to Thessaly where he succeeded in suppressing a plague of mice. Loeffler has produced notable works in all fields of bacteriology and hygiene. Twice he refused a call to leave Greifswald, first to Marburg and then to the Veterinary College in Berlin. It is generally the source of great gratification that he has now accepted the call to Berlin.

Marriages

WILLIAM DUNCAN REID, M.D., Newton, Mass., to Miss Blanche Adeliene MacDonald of Tara, Ontario, September 23.

VALLOYD ADAIR, M.D., Lorain, O., to Miss Mabel MacRae of St. George's Channel, N. S., at Worcester, Mass., October 6.

GEORGE WILLIAM KEIL, M.D., Loma Linda, Cal., to Miss Florence Heldmann of West Arlington, Md., September 10.

WILMER AMOS HADLEY, M.D., League City, Tex., to Miss Sue Kathleen Kinsley, Dickinson, Tex., October 4.

HARRY WILLIAM BENSON, M.D., Oakland, Neb., to Miss Grace M. Bohne of Rochester, N. Y., recently.

JOHN LAFAYETTE GORDON, M.D., to Miss Edith Henrietta Dickey, both of Columbus, O., September 24.

JOHN CARTER ROWLEY, M.D., Brookline, Mass., to Miss Sarah Root, Dunham, Hartford, Conn., October 11.

EMMET L. HAWKINS, M.D., to Miss Vera Spetman, both of Council Bluffs, Ia., at Omaha, October 14.

ROLLIN G. HENDRICKS, M.D., Indianapolis, Ind., to Miss Grace Newcomber, Noblesville, Ind., October 15.

JOHN ALBERT KONZELMAN, M.D., St. Louis, Mo., to Miss Bertha B. Blair, Sparta, Ill., October 16.

NOAH JEFFERSON GOSHORN, M.D., Daviess, Ind., to Miss Susie Tate, St. Charles, Mo., October 8.

LEWIS J. JONES, M.D., Middlesboro, Ky., to Miss Mary Johnston, Cumberland Gap, October 16.

JOHN S. PYLE, M.D., Toledo, O., to Miss Mary A. Raynor of New York City, in Detroit, October 8.

PAUL A. REMINGTON, M.D., Missoula, Mont., to Miss Jennings of Cavalier, N. Dak., October 8.

MAURICE STEIN, M.D., Millerstown, Pa., to Miss Sarah Rubin, Baltimore, Md., September 13.

WILLIAM M. JOHNSON, M.D., Peckham, Okla., to Miss Hylda M. Roehe, Wichita, Kan., October 15.

RALPH A. BOWDLE, M.D., to Katherine L. Eager, M.D., both of Salt Lake City, October 15.

BRUNO GETZLAFF, M.D., Sutton, Neb., to Miss Frances Wilson of St. Louis, September 2.

EDWIN FRANCIS JONES, M.D., to Miss May Ethel Campbell, both of Barton, Vt., October 20.

PETER L. MCKALLAGAT, M.D., Lawrence, Mass., to Miss Mary Genevieve Conlon, October 14.

ISADORE MICHAEL TRACE, M.D., to Miss Miriam G. Haekner, both of Chicago, October 14.

HAROLD M. CAMP, M.D., Monmouth, Ill., to Miss Rose Laura Fox, Chicago, October 16.

MINERVA LOUISE BLAIR, M.D., Ann Arbor, Mich., to Claude Pontius, September 22.

JOHN EDWARD DOLAN, M.D., to Miss Josephine Connell, both of Chicago, October 15.

LOWELL SIDNEY GOIN, M.D., to Miss Dawson, both of Manilla, Ia., recently.

Deaths

Joseph Lactance Archambault, M.D. Laval University, Quebec, 1870; a Fellow of the American Medical Association and once president of the Albany County Medical Society, vice-president of the Medical Society of the State of New York, and president of the Cohoes Society for the Prevention of Tuberculosis; gynecologist to the Cohoes City Hospital, and for thirty-six years choirmaster of St. Joseph's church; died at the home of his daughter in Montreal, October 16, aged 65.

Jonathan Burmond Garber, M.D. Jefferson Medical College, 1890; a Fellow of the American Medical Association, and a member of the Mississippi Valley Medical Association; a prominent practitioner of Dunkirk, Ind., who was crushed under his overturned automobile near Hartford City, September 30, died in Hartford City, October 3, from his injuries, aged 57.

George Drury, M.D. Long Island College Hospital, Brooklyn, N. Y., 1878; a member of the Medical Society of the state of New York, and for thirty-five years a practitioner of Brooklyn; died in the Skene Sanatorium, Brooklyn, October 20, following an operation for disease of the intestines, aged 56.

Sylvester Rush Weaver, M.D. Vanderbilt University, Nashville, Tenn., 1894; a Fellow of the American Medical Association, and a specialist on diseases of the eye, ear, nose and throat of Sherman, Texas; aged 41; died at his home in that city, September 24, from carcinoma of the stomach, for which he had undergone operation several months before.

Albert Harrison Moore, M.D. Jefferson Medical College, 1896; a Fellow of the American Medical Association; mayor of Ashland, Ky.; local surgeon of the Chesapeake and Ohio System; formerly coroner of Boyd County; one of the most prominent practitioners of northeastern Kentucky; died at his home in Ashland, September 26, aged 42.

George Summers Brown, M.D. Jefferson Medical College, 1895; a member of the Medical Association of the State of Alabama and Southern Surgical and Gynecological Society; a leading surgeon of Birmingham; died in Lakeside Hospital, Cleveland, O., September 28, after an operation for the removal of gall-stones, aged 53.

Arthur Adelbert Downs, M.D. Baltimore Medical College, 1897; a Fellow of the American Medical Association, and the National Antituberculosis Society; who was instrumental in the establishment of the Chase Sanatorium, Fairfield, Maine; died at St. Barnabas' Hospital, Portland, October 13, from septicemia, aged 39.

Thomas Alexander Elder, M.D. Rush Medical College, 1868; Bellevue Hospital Medical College, 1872; a member of the Ohio State Medical Association; a veteran of the Civil War and one of the oldest practitioners of Wooster; died in the Presbyterian Hospital, Chicago, October 19, from heart disease, aged 70.

George Turner Hesser, M.D. Cooper Medical College, San Francisco, 1895; a Fellow of the American Medical Association; local surgeon of the Southern Pacific System at Folsom City, Cal.; died in St. Francis Hospital, San Francisco, September 22, after an operation on an infected gall-bladder, aged 50.

William John Bradley, M.D. Rush Medical College, 1890; a Fellow of the American Medical Association, and a member of the staff of St. Luke's Hospital, Cedar Rapids, Ia.; one of the ablest and best-known practitioners of Cedar Rapids; died in St. Luke's Hospital, October 2, from typhoid fever, aged 47.

Reuben E. Brokaw, M.D. Western Reserve University, Cleveland, 1895; a Fellow of the American Medical Association; died at his home in Portland, Ind., July 26, from acute general streptococcus infection, aged 45.

Francis Loring Banfield, M.D. Bowdoin Medical College, Brunswick, Me., 1881; a Fellow of the American Medical Association; died at his home in Worcester, Mass., June 25, from angina pectoris, aged 69.

Arthur Scott Koenig, M.D. University of Pennsylvania, Philadelphia, 1901; a Fellow of the American Medical Association and a practitioner of Lewistown, Pa.; died in Philadelphia, about September 21.

Edwin C. Reames, M.D. University of Buffalo, N. Y., 1895; a member of the Medical Society of the State of New York; died at his home in Canastota, September 25, from nephritis, aged 43.

Henry H. Havens, M.D. Medical College of Ohio, Cincinnati, 1880; a member of the Ohio State Medical Association; died at his home in Tippecanoe City, O., from erysipelas, aged 56.

William Cecil Stafford, M.D. Detroit (Mich.) Medical College, 1872; for twenty-five years a practitioner of Youngstown, Ohio, died at his home, September 14, aged 66.

Frank P. Witham (License, years of practice, Ohio, 1896); for thirty-five years a practitioner of Withamsville, O.; died at his home, September 29, aged 60.

Walter Z. Twitchell (license, Maine, 1895); for twenty-five years a practitioner of Andover, Maine; died at his home in that city, September 13, aged 58.

Ezra E. Tope, M.D. Starling Medical College, Columbus, Ohio, 1880; died at his home in Scio, Ohio, from sarcoma, August 17, aged 62.

R. N. Taylor, M.D. Chattanooga (Tenn.) Medical College, 1901; of Chattanooga; died in a sanatorium in that city September 2.

William G. Todd, M.D. Rush Medical College, 1844; of Chicago; died at the home of his daughter in that city, August 7, aged 91.

Thomas L. Williams, M.D. University of Louisville, Ky., 1869; died at his home in Pulaski, Tenn., September 18, aged 87.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MEDICAL JOURNALS AND THE GREAT AMERICAN FRAUD

The responsibility of medical journals for the continued existence of at least a part of the "great American fraud," has been referred to in these pages many times. Within the past few weeks THE JOURNAL has called attention to the inconsistency of reputable physicians of high ideals lending their moral, and often financial, support to those medical journals whose advertising pages are a disgrace to the profession. Specifically, the *Medical Times*—originally a homeopathic medical journal—has been referred to, among others, as an example of this type of journalism. It must, however, be regarded simply as a type, for it is no better and no worse than many other medical journals. Several letters have been received on the subject, some of which we reproduce. The first one is from Dr. George G. Ross of Philadelphia:

"I was very much jarred on receiving the last issue of THE JOURNAL to find under the Propaganda for Reform an article concerning the *Medical Times*, among the list of whose contributing editors my name appears. I enclose you herewith a copy of my letter of resignation to the *Medical Times*. I have a very dim recollection of what occurred at the time that I was asked to give my name as a contributing editor. As I recollect it, however, at that time the journal was a respectable and ethical publication. I had been asked by a friend of mine to write an article giving my opinion of the effects of college athletics on undergraduates. This was at the time that Dr. Stokes had issued his order about athletics at Annapolis. I want personally to thank you and the committee for the exposure of this journal and for having drawn my attention to the fact that I was unwittingly aiding and abetting such a journal. I trust that if you have space in some future number of THE JOURNAL, you will do me the justice to publish all or part of this letter."

Because he feels that he has "unwittingly been put in an unfavorable light," Dr. James A. Babbitt, also of Philadelphia, sends THE JOURNAL a copy of a letter written by him to the editor of the *Medical Times*. Here it is:

"For reasons of which you are probably cognizant, I deem it advisable to resign from the board of contributing editors of the *Medical Times*, and desire that this resignation be accepted at once and my name not appear in further issues."

What shall be done, asks Dr. Sidney Thompson of Humboldt, Tennessee, in such cases as the following? Says Dr. Thompson:

"In the Propaganda for Reform, in THE JOURNAL, October 18, 1913, in closing your article on 'Medical Journals and the Great American Fraud,' you say: 'The physician who permits such journals to come to his office must share with the paid subscribers the responsibility for the low standard of medical journalism.' Now I agree with you in everything you have said about the *Medical Times*, but what I want to know is how to keep such journals from coming into your office. The *Medical Times* has been coming to me for a number of years with repeated duns for the subscription price. I have written to them several times that I did not want the journal and never expected to pay for it, but still it comes. I have a vague recollection that I bit at an offer to send it three or four months free, not knowing what it was, but I never authorized them to enter my name as a regular subscriber."

The simplest course in such a case as that described by Dr. Thompson, is to write on the unwelcome publication the word "refused" and either drop it in the nearest mail-box or hand it back to the postman. The courts have held that a person who continues to accept publications is legaliy liable for the payment of such publications. The postoffice department, however, has ruled that a magazine—either monthly or weekly—may not be sent at second-class rates for more than one year after the expiration of a bona fide subscription. At the expiration of that time, stamps must be affixed and the publications sent at third-class postal rates.

SOME DEAFNESS-CURE FRAUDS

The name of the deafness-cure quack is legion. Some carry an alleged cure for deafness as a "side-line" for other medical fakes they may be exploiting; some sell on the mail-order plan a worthless "course of treatment," while still others, and these probably are in the majority, dispose of, at an exorbitant price, devices that are trivial, worthless, and often dangerous. Many of the American deafness-cure quacks do an international business. Particularly do they invade that verdant field for medical fakers, the British Isles. Some of the most blatant of these have been exposed on the other side by Evan Yellon, editor of the *Albion Magazine*, a publication issued in the interests of the deaf. Mr. Yellon is a journalist of the militant type. Himself a sufferer from deafness, he appreciates the viciousness of the victimization carried on by the deafness-cure quacks. While a layman, Mr. Yellon expresses himself with no uncertainty regarding the dangers of quackery. Says he:

"There is the very world of distinction between the qualified specialist and the quack. In one case you have a man . . . whose special education and training will have required the sinking of a round sum in capital plus many years of life . . .

"On the other hand, in the quack, we have in the majority of cases a man who does not possess even a sound general education, and who very often does not understand the elements of ordinary personal cleanliness. . . . He is a man moving in the dark, and thus making only blind shots . . . He is a man of mysterious methods and secret remedies, and his vogue to-day is at once a significant token, and, as I have said, a menace to the community."

These words, while written for British readers, apply with equal truth and equal force to the American fakers who sell deafness "cures."

The following paragraphs have been written for the purpose of making more complete a pamphlet,[1] we have in preparation especially for the enlightenment of the public on the subject with which it deals. The numerous inquiries that have been received during the past three or four years regarding the concerns specifically dealt with in the matter that follows is THE JOURNAL'S excuse for publishing it here.

"Dr. L. C. Grains Company" née "Dr. Guy Clifford Powell"

Dr. Guy Clifford Powell, the deafness-cure quack of Peoria, Ill., was dealt with at some length by Mr. Adams in the "Great American Fraud" series. Powell's particular fake was what he called the "Electro-Vibratory Cure for Deafness," for which he asked $100 in his first letter to prospective victims, but—sliding swiftly through a series of form letters—finally offered to take $15 if the quarry seemed in any danger of escaping. As Mr. Adams said, Powell's Cure "isn't worth $100 or $30 or $25 or 25 cents, except as its patent right owned by the 'discoverer' is an asset in his swindling operations." Powell called himself an "International Specialist"; if he had said international quack, he would have been correct, for he advertised heavily on both sides of the Atlantic.

In due time, Powell went the way of all flesh, but his fraudulent business was too valuable an asset, apparently, to let die. It is now being carried on by a concern known as the "Dr. L. C. Grains Company," and is operated from Chicago instead of Peoria. The Dr. L. C. Grains Company is said to have the following officers:

FLOYD R. PERKINS, president.
J. HOWARD START, vice-president.
GEORGE H. ELY, secretary and treasurer.

1. 'Deafness-Cure Frauds," price 10 cents.

None of these gentlemen, it seems, are physicians or are even remotely connected with medicine or pharmacy. They are, as is so often the case in quack concerns, advertising men and operate an advertising agency—the Charles H. Fuller Co., Chicago. According to the Chicago City Directory, Messrs. Perkins, Start and Ely hold the same official positions in the Charles H. Fuller Company that they hold in the Dr. L. C. Grains Company.

L. C. Grains seems originally to have had a small mail-order fakery of his own. "Red Clover Extract" and "Curo Grains of Life" were his specialties. After the officers of the Charles H. Fuller Company bought out the Powell factory and

Fig. 1.—Photographic reproduction of some of the old advertising put out by Dr. Guy Clifford Powell. It is used practically in its entirety by the Dr. L. C. Grains Co., successors to Powell's fakery. Compare it with Figure 2.

moved it, bag and baggage, from Peoria to Chicago, L. C. Grains had the title "Dr." added to the concern. So far as our records show, and they are exceedingly complete, L. C. Grains has absolutely no claim to the title of doctor of medicine.

The advertising matter, booklets, leaflets and the general paraphernalia of the mail-order medical fake issued by the Dr. L. C. Grains Company is practically identical with that used by Powell. About the only changes that have been made are those of substituting the words "Dr. L. C. Grains Company" for "Dr. Guy Clifford Powell." The "International Specialist" has become the "International Specialists." So far as we have been able to discover the only physician connected with the Dr. L. C. Grains Company is one R. C. McFall. The records show that a woman of that name was graduated by the, since, defunct Indiana Eclectic Medical College in 1888. Dr. McFall seems to have practiced for some years in Indianapolis. Since 1900, however, she has been in Illinois, most of the time, apparently, in Chicago. For an "international specialist," she seems to be little known. Needless to say, Dr. McFall is not a member of the Chicago Medical Society.

In brief, the Dr. L. C. Grains Company, which derives its profits from the unfortunate deaf, is a fraud as was its predecessor, the Guy Clifford Powell concern.

Edward E. Gardner

Dr. Edward E. Gardner is in the "deafness-cure" business at 38 West Thirty-Third Street, New York City. In his advertisement he calls himself "a celebrated New York Aurist"; a notorious New York quack would be nearer the truth. Gardner says, speaking impersonally of himself:

> "His diploma is endorsed and he is given the honor to practice medicine not only in New York State but by searching tests and thorough examination is given endorsement by the State Boards of New York, Pennsylvania, Illinois, Massachusetts, Vermont, and, in fact, all the states and territories in the United States. He is also allowed to send his treatment to England, Scotland, Ireland, France, Germany, Italy, and to all parts of the globe. Very few doctors have had this distinction bestowed on them. This means that you can rely on his treatment."

As lying is the chief stock-in-trade of quackery, Gardner ought to be highly successful in his chosen calling, for it would be hard to condense into smaller space than the matter just quoted a greater number of direct and inferential falsehoods.

In 1890 Gardner seems to have been practicing in the state of Illinois and Pennsylvania, but soon thereafter is alleged to have been connected with the Copeland Medical Institute at Fifth Avenue, New York City. About 1900 he and his father-in-law are said to have opened an office on West Thirty-Fourth Street, New York City, where he exploited a "catarrh cure" under the name of the Norma Medical Association. Still later, he moved to his present address where he and his brother, E. A. Gardner—who is not a physician—conducted business under the style "Drs. Gardner" until official intervention caused a change in title to "Dr. Gardner."

Gardner was a stockholder in the "Help-to-Hear Company," a cruel swindle put out of business by the federal authorities in 1906. In 1907 Gardner went into bankruptcy with about $13,000 liabilities and no available assets. The Norwich Pharmacal Company is said to have been one of his largest creditors.

Gardner's methods are typical of the mail-order quack: Letters, a sliding scale of prices and the other stock-in-trade of the ilk. Like all mail-order fakers, Gardner disposes at intervals of the letters he receives from victims. A letter-broker concern in New York City has advertised over 12,000 of Dr. E. E. Gardner's "deaf letters" for sale or rent. Those who write Gardner are sent a "free trial treatment" consisting of a small amount of ointment to put into the nostrils, some solution to drop in the ear and some tablets to take internally. The "regular treatment," we are told, costs $5 and lasts one month. This price he keeps up for three or four letters and then cuts it to $2.60. Some time later he writes again, making a "special rate" of $3 for a month's "treatment." He guarantees "to bring good results in three months," which "at $3 a month would be $9." He offers to cut this in two and to send a three months' treatment for $4.50 and says: "Now I think this is a grand offer, I think one that you ought to accept." With this letter he encloses a slip describing other "cures" that he handles as side-lines. His "special rheumatism treatment including medicines" comes at a dollar a month; constipation he will handle at 50 cents a month; insomnia costs a dollar, as do also hysteria, indigestion and blackheads. Taking it all in all, Gardner

Fig. 2.—Photographic reproduction of some of the Dr. L. C. Grains Company, the name under which the officers of the Charles H. Fuller Company advertising agency continue Powell's frauds. Compare with Figure 1.

seems to fulfil all of the traditions of quackery. The deaf cannot do better than avoid him.

George P. Way Ear-Drum

George P. Way does business from Detroit, Mich. He sells what he calls a medicated ear-drum which—if we are to believe the advertising matter—is so wonderful that it enables a man who is so deaf that he cannot hear thunder to hear a clock tick thirty feet away! But, of course, we are not to believe what George P. Way publishes. Way claims to have cured himself of twenty-five years' deafness by means of his

drums. He asks $5 a pair for them, but if you are not too anxious you will receive the usual follow-up letters and before long will be able to purchase not only a pair of ear-drums but also "a very unique instrument" that Mr. Way has christened "Blowena"—all for $5. Blowena is a "catarrh cure" which George P. sells as a side-line to his ear-drum offer.

A study of the advertising matter that he has sent out during the past few years shows various discrepancies in the statements made at different times. In one of his earlier leaflets Way, who claims to have been an engineer, declares that before he "discovered" and "invented" his ear-drum he was so deaf that "it was with difficulty that I could hear the noises of my own engine." The later leaflet omits the sentence just quoted although the balance of the matter is practically identical. Why? Was the falsehood too raw, even as an asset to quackery? In the earlier leaflet, he said:

"*I* have been granted patents in *all* foreign countries as well as in the United States."—[Italics ours.—ED.]

More recently, this has been toned down to:

"Patents have been granted in foreign countries as well as in the United States."

This modification is explainable to those who look into the matter carefully. In the first place, it is not true that Way ever was granted patents "in all foreign countries"; in the second place, the elimination of the personal pronoun is doubtless due to the fact that the "medicated ear-drum" that Way sells is not his invention but the invention of Frances M. Way, his wife! Incidentally, Frances M. Way is the individual referred to in the advertising matter thus:

"Most important of all, I have with me Dr. F. M. Way, who is a well-known specialist of the ear, nose and throat . . ."

It is hardly necessary to say that Dr. Way is not a "well-known specialist"; actually she was graduated in 1902 by the Detroit Homeopathic College, a low-grade institution now defunct.

Way publishes comparatively few testimonials, for a quack. Although we have a full set of his follow-up letters, covering a period of some years, there are less than a dozen testimonials all told. Yet, Mr. Way claims that he has hundreds on file! One testimonial that he has featured to the extent of publishing not only a fulsome letter but a photograph of the person giving it came from a young woman who, the public was told, "was so deaf that I was attending a deaf-and-dumb school." She bought a pair of Way's ear-drums, and "now can hear a clock tick in any part of the room." A physician was written to who lives in the same town as this young woman. He declares that the girl has never been extremely deaf and her hearing is not yet restored.

The Way "medicated ear-drum" itself is a particularly vicious little device. While there is nothing in the advertising matter sent out by Way to make this clear, it is a fact that the drums are specially designed for individuals whose tympanic membrane ("ear-drum") is ruptured. It is a rubber contrivance enlarged at each end and with a constricted portion in the center. One of the enlarged ends is supposed to be pushed into the middle ear. The drums are recommended for discharging ears; actually they are about the worst things that could be used in such a condition. The amount of damage a piece of fakery of this kind can do is almost beyond belief. But it furnishes the Way family an income which they are willing to divide with those publications that are not above participating in the profits of quackery.

I Was Deaf 25 Years
I CAN NOW HEAR
with these soft, pliable artificial ear drums I wear them in my ears night and day. They are perfectly comfortable. No one sees them in my ears. Write me and I will tell you a true story,—how I got deaf and how I made myself hear.
Medicated Ear Drum
Pa. Nov 3, 1908
No. 902785
ARTIFICIAL EAR DRUM COMPANY
Address GEO. P. WAY, Manager
G. P. WAY 41 Adelaide Street Detroit, Mich.

Fig. 4.—George P. Way's advertisement. The Way Ear-Drum never cured a case of deafness but might easily prove a serious injury to the deaf.

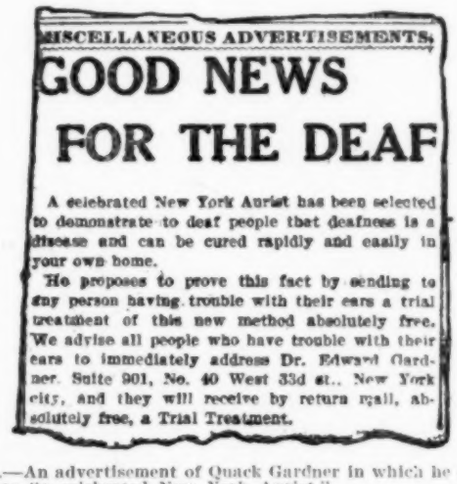
MISCELLANEOUS ADVERTISEMENTS.
GOOD NEWS
FOR THE DEAF
A celebrated New York Aurist has been selected to demonstrate to deaf people that deafness is a disease and can be cured rapidly and easily in your own home.
He proposes to prove this fact by sending to any person having trouble with their ears a trial treatment of this new method absolutely free. We advise all people who have trouble with their ears to immediately address Dr. Edward Gardner, Suite 901, No. 40 West 33d st., New York city, and they will receive by return mail, absolutely free, a Trial Treatment.

Fig. 3.—An advertisement of Quack Gardner in which he describes himself as "a celebrated New York Aurist."

The Wilson Ear Drum

The Wilson Ear-Drum, exploited by George H. Wilson, Louisville, Ky., is another of the small rubber contrivances, made to slip into the external auditory canal (the outer ear-passage), of which there are so many on the market. It is advertised under the usual fraudulent claims and is just as worthless as most devices of this sort and just as potent for harm. One might imagine that plain business judgment would prevent Wilson making claims that every person who has reached the age of accountability, whether he is technically educated or not, would be able to recognize as evident falsehoods. In the world of quackery, however, no such restrictions seem to hold. As Mr. Adams has so well remarked: "Our national quality of commercial shrewdness fails us when we go into the open market to purchase relief from suffering." Otherwise no quack could make such claims as Wilson makes and "get away with them." Here, for instance, is what is claimed for the Wilson Ear-Drum:

"It is the only device in the world that collects sound waves and focuses them to one point.'

"It is the only device in the world constructed on scientific principles."

"It is the only device in the world that is made to fit the orifice of the ear."

"It is the only device in the world, that cannot possibly injure the hearing."

Fig. 5.—A Wilson Ear-Drum advertisement. These worthless little rubber devices are described as "wireless telephones."

These are only a few of the superlative virtues assigned by Mr. Wilson to his trumpery piece of rubber. Elsewhere he calls them "wireless telephones for the ears," and claims that by their use "every condition of deafness or defective hearing is being helped and cured . . ."

Wilson sells his ear-drums on the mail-order plan; also he travels over the country selling them. In some of his advertising Wilson claims to have been president of the Louisville School Board. This will not surprise those familiar with the exploitation of medical frauds who know that the second largest city in the United States until recently had for its president of the Board of Education an individual who made his money out of the sale of a "cure" for sore eyes and a correspondence school of spectacle fitting. Wilson also claims to have been "honored with the presidency of the Kentucky Society Sons of the American Revolution," which, while doubtless a splendid advertising asset for Wilson, does not do credit to the judgment of a presumably reputable organization.

The Wilson Ear-Drum, with "nickel forceps" and "drum inserters" thrown in, come at $5 a pair. As cures for deafness they are not worth five cents, except as they presumably furnish Wilson with an easy living.

THE CANADIAN REPORT ON THE FRIEDMANN "CURE"

Reference has been made to the action of the Canadian authorities on the Friedmann "cure," but the report has not heretofore been given in full. Here it is:

"In order to allay public excitement and to afford to the medical profession and people of Canada an authoritative statement regarding the value of Dr. Friedmann's treatment, the Canadian Association for the Prevention of Tuberculosis nominated a committee of five members to study and report on the cases inoculated by Dr. Friedmann at Montreal, Ottawa, Toronto, and London, Ontario. That committee has added to itself those physicians who have under observation the cases treated in these cities. The committee thus constituted begs to report that it has carefully studied the case histories of the patients inoculated by Dr. Friedmann. These number altogether 161, namely, for Montreal 55, for Ottawa 10, for Toronto 81, for London 15.

"As a result of our observations from March 11 to June 23, the following conclusions seem justifiable:

"1. The inoculations have neither constantly nor frequently been followed by any marked change in the clinical course of the disease.

"2. The cure or progress toward cure claimed by Dr. Friedmann for his treatment has neither constantly nor even frequently taken place in the time during which these cases have been under observation.

"3. Thus on investigation the committee finds that the results have been disappointing, and that the claims made for this remedy have not been proved, and that *nothing has been found to justify any confidence in the remedy.*" [Italics ours.—Ed.]

Correspondence

Preliminary Report of a Case of Sensitization to the May-Fly (Ephemera)

To the Editor:—In July, 1913, a patient consulted me for attacks of a distressing coryza with sneezing, lacrimation and a reddening of the eyes. He stated that these attacks came on during June and July and appeared to be brought about while driving in the evening whenever he encountered a swarm of those ephemerids commonly called "May-flies," "Canada soldiers," "fish-flies," etc. These insects, as is well known, are abundant in the region of the Great Lakes, the imago passing its brief existence in the air, at which time the female is fertilized. The attacks from which the patient suffered had begun a few years previously and without assignable cause. The symptoms were quite like those of hay-fever without asthma, and after each one, in the absence of a repetition of the usual exciting cause, a day or two was necessary for recovery.

In order to test the hypothesis of a sensitization to the ephemerid, a single insect was caught and shaken in a vial with about 2 c.c. of sterile saline solution. One drop of this solution was placed in the patient's right eye. In less than two minutes there was smarting and irritation of the eye, and within fifteen or twenty minutes a marked conjunctival redness and a pronounced chemosis developed, the other eye remaining normal. Three controls were tried with the same solution on presumably normal subjects with negative results. The reaction in the patient's eye from the experiment was so great, and was attended with so much physical distress for from twenty-four to twenty-six hours, that no subsequent experiments have been attempted; but I have in preparation some protein extractives from the dried insects, which may make further investigation possible, and I hope to make a later report in the matter. Whether the sensitizing agent of the ephemerid is a substance generally distributed through its body, or resides in the eggs, which are abundant, or in some other special organ or part is not yet clear.

I supposed that this peculiar form of sensitization had not been noted or reported by any other observer and was surprised to learn by personal communication from Mr. F. West of the Gratwick Laboratory in Buffalo that a similar case has been observed this year by Dr. F. W. Hinckel of that city.

If any cases of sensitization to this ephemerid have been recognized by others, I should be gratified for any information concerning them.

Harold Wilson, M.D.,
32 Adams Avenue West, Detroit.

Sterilization of Rubber Gloves by Boiling

To the Editor:—The method of sterilizing rubber gloves described by Dr. Ray Ernest Smith in The Journal, Oct. 18, 1913, p. 1475, is a good one when only one examination of the patient is required. I, however, prefer to boil them. I know then that they are absolutely safe. I put the gloves into a small pan of water, place it on an ordinary kitchen or oil stove, and let them boil a few minutes. This I do while I scrub my hands and arms with soap and water, using no antiseptic whatever. I allow cold water to run into the gloves to dislodge the hot, and draw them on while they are distended. After each examination I put the gloves back into the hot water and give them another boil. Frequent boiling of rubber gloves does not impair their quality if they are not roughly handled and if thoroughly dried after using. I believe that this is the safest, simplest and most satisfactory method of sterilizing gloves for obstetric work.

Walter A. Landry, M.D., Chester, Pa.

Exuberant Verbosity

To the Editor:—Has the editorial writer (The Journal, Oct. 18, 1913, p. 1464) overlooked the historical fact that the exuberant verbosity of legal forms was not an intoxication, but a species of graft? Old English law-clerks were paid so much a word or a line for engrossing legal documents, and in consequence the more words used, the greater the pay. Every synonym, nearly or distantly connected, was drawn in and duly inscribed. A sentence lingers in my memory, taken from an old English common-law form of indictment for maintaining a nuisance in which it is alleged that "divers odors, savors, smells, scents and stenches did issue, proceed and flow therefrom." As the principles of *lex scripta* are said to be immutable, so also appears to be its language; for the same quaint, archaic phraseology, scarcely altered except in spelling, is used in legal forms to-day as in the days of Good Queen Bess or in those of Bloody Mary.

Bernard Wolff, M.D., Atlanta, Ga.

Tuberculosis Among Schoolteachers.—Over a period of years 52.4 per cent. of the deaths among schoolteachers, between the ages of 25 and 34 were due to tuberculosis, while only 25.8 per cent. of the deaths among all persons in Michigan, between the ages of 25 and 34, were due to this disease. Among schoolteachers of all ages 27.6 per cent. of the deaths were due to tuberculosis, while among all persons of all ages only 9.4 per cent. were due to this disease.—*Bull. Mich. State Bd. Health.*

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OPEN-AIR TREATMENT AND THE FLUELESS HEATER

To the Editor:—By an appropriate coincidence two editorials in THE JOURNAL of October 11 give the two sides of the theories of ventilation. The "Open-Air Treatment" editorial outlines the newer ideas, while the "Flueless Heater" represents the older teaching, that air may become vitiated and contaminated.

The teachers of the new philosophy authoritatively assume and proclaim that from their interpretation of a few experiments which they have made we can safely disregard any accumulation of carbon dioxid which may occur; that body exhalations or odors are of no ill effect, or if any effect is supposed to be produced, it is purely psychic; that the oxygen content cannot be decreased in an overcrowded room to cause any ill effect, but that the ill effects which do occur in crowded rooms are due to stagnation of air with high temperature and humidity, which disturb the heat balance of the body, and that all ill effects of overcrowding may be relieved by agitating the air to break up the air envelope of the body.

These conclusions which are so authoritatively proclaimed are based on a few laboratory experiments, altogether too few to permit definite conclusions to be safely drawn on a subject which concerns the health of millions of people.

The subject of an experiment carried on for a few hours in a laboratory may not be conscious of any ill effects. There may be no ill effects so far as he is concerned because of the wonderful adaptability of the human body to its environment; but to say that under similar conditions the millions of people in shop and factory would suffer no ill effects is an unwarranted conclusion.

The resistance of the human body may be perfect in an experiment of a few hours, but when it is exposed to the same conditions for months and years, the accumulating effect will result in deterioration of health and increase of disease and death.

The logical conclusion from this new idea of ventilation must result in a lowering of the standards of air purity and an indifference in the public mind to the need of any effort for efficient ventilation.

We should not be hasty to draw conclusions from insufficient evidence. Let the investigators gather and present their facts. The experimenters may lack the judicial temperament to properly interpret the facts which they gather. The subject of ventilation is still open and more facts should be observed and presented for consideration before we can draw definite conclusions.

JOHN B. TODD, M.D., Syracuse, N. Y.

ANSWER.—Our correspondent is evidently unfamiliar with the literature when he declares that the laboratory experiments made on this matter are too few to warrant definite conclusions. We would refer him especially to the following articles:

Heymann: Ztschr. f. Hyg., 1905, xlix, 388.
Paul: Ibid., 1905, xlix, 405.
Erclentz: Ibid., 1905, xlix, 433.
Flügge: Ibid., 1905, xlix, 363.
Reichenbach and Heymann: Ibid., 1907, lvii, 23.
Hill, Rowland and Walker: *Jour. Physiol.*, 1911, xli,

References to a number of other articles dealing with the alleged toxic properties of expired air, together with a full discussion of the question, are given in an excellent article by Crowder (*Arch. Int. Med.*, January, 1911, p. 85; abstr., THE JOURNAL, Feb. 25, 1911, p. 622). The question of what constitutes "sufficient evidence" is always more or less a matter of personal experience in dealing with the question under consideration, and is always influenced temperamentally by the ease with which long-cherished beliefs can be abandoned.

There is no contradiction or inconsistency between the two editorials referred to. The oil- or gas-heater, in the very nature of the case, makes it essential that the windows and doors be closed if it is to produce the effect desired—that of raising the temperature. If it has no flue, then it means not only that the oxygen is consumed, with a corresponding amount of carbon dioxid produced, but, what is of much greater importance, if there is much imperfect combustion carbon monoxid, a definite active poison, is poured forth into the room.

TRYPSOGEN

To the Editor:—Can you tell me anything of the G. W. Carnrick Company, manufacturing chemists, New York? Do you know anything of their product Trypsogen for treatment of diabetes mellitus?

W. D. CASEY, M.D., Walls, Miss.

ANSWER.—Besides exploiting a clay poultice—"Antithermoline"—the G. W. Carnrick Company appears to be chiefly concerned in the promotion of "internal secretion" specialties; a class of preparations the therapeutic value of which is problematical. Thus it markets the diabetes remedy, "Trypsogen" tablets, said to contain "the enzyme of the islands of Langerhans with the tryptic and amylolytic ferments of the pancreas" along with gold bromid and arsenic bromid; Secretogen Elixir, said to be "prepared from gastric secretin obtained from the pylorie antrum and pancreatic secretin from the duodenum, combined with the enzymes of the peptic glands, and one-twentieth of one per cent. HCl"; Secretogen Tablets, said to be "prepared from prosecretin and succus entericus obtained from the epithelial cells of the duodenum, combined with pancreatic extract"; Kinazyme, "a preparation of extract of spleen, reinforced with trypsin, amylopsin and calcium lactate."

While great claims have been made for Trypsogen and while it has been most widely advertised, it is the consensus of opinion of the most eminent students of the question that pancreas is not really efficacious in diabetes. Were it of any value in this disease, it would have won world-wide recognition for itself ere now, in view of the great enthusiasm with which the discovery of the relation of the pancreas to diabetes was received and of the enormous amount of clinical, as well as animal, experimentation that followed. As the conditions of experiment in this question are extremely complex, it is not surprising that occasionally apparently positive results should have been obtained. Were it really useful, it should have yielded positive results much more uniformly.

Furthermore, if pancreas were really efficacious in the treatment of diabetes mellitus, the addition of arsenic, of gold, of bromid would be entirely unnecessary.

Even were it granted that pancreas extracts are valuable in the treatment of diabetes, and that gold and arsenic also have beneficial effects, it is our opinion that Trypsogen should be considered an unscientific shotgun mixture, because fixed combinations of remedies of different potencies, such as arsenic, gold, bromid and pancreas, are therapeutically erroneous, as they do not permit of that accurate adjustment of dosage of each ingredient that is indispensable to obtain maximum benefit with minimum danger of poisoning.

Antithermoline and Trypsogen were at one time described in New and Nonofficial Remedies. These preparations were omitted when the Council's rules were revised some years ago.

When the Council was first organized it undertook only the correction of the most serious abuses that had become a part of the proprietary medicine business, and paid less attention to the therapeutic worth of a remedy; thus at that time it admitted both Antithermoline and Trypsogen to New and Nonofficial Remedies. Since then the Council has modified its rules to exclude unscientific mixtures marketed under names that are misleading or therapeutically suggestive. Accordingly it rescinded the acceptance of Antithermoline, which was essentially the official clay poultice, Cataplasma Kaolini, U. S. P. For similar reasons and because the therapeutic claims were held unwarranted Trypsogen has been omitted from New and Nonofficial Remedies.

It is to be regretted that the progress of research should be hindered and the value of genuine products of internal secretion be depreciated by confusion with such shotgun mixtures and asserted remedies, whose claims have received no scientific confirmation.

RADIO-ACTIVITY OF SPRINGS

To the Editor:—I should like to know the radio-activity of the different American and foreign radio-active springs as compared with the radio-activity of sea-water, particularly the water of the North Atlantic.

D. T. QUIGLEY, M.D., North Platte, Neb.

ANSWER.—All naturally occurring waters, even rain-water, are somewhat radio-active; few figures, however, are available as to the degree of this radio-activity in the case of American waters. Schlundt (*Tr. Wisconsin Acad. Sc.*, 1910) reported the activity of the water of a well at Madison, Wis., to be 1.9×10^{-10} curies per liter (expressed in the international unit); that of certain springs in Wisconsin was two or three times as great. Schlundt and Moore (Bull. 395, U. S. Geological Survey) found the radio-activity of various springs in the Yellowstone Park to range from 0.2, or less, to 24×10^{-10} curies per liter. Lazarus (Handbuch des Radiums in Biologie und Therapie) states that the Gastein springs range from 116 to 524×10^{-10} curies; one spring at Johannisthal had an activity of 2,220.

Probably the most complete investigation of any American springs was that of Boltwood, in connection with the Hot Springs of Arkansas; the results, however, have never been made public. Some time ago THE JOURNAL wrote to the Secretary of the Interior requesting information on this sub-

ject. The department replied that "For administrative reasons this report was not published in its entirety," the only official statement being that the waters "are radio-active to a marked degree"—a statement which might have emanated from a patent medicine manufacturer. From statements made by Boltwood (*Am. Jour. Sc.*, 1905) and by Schlundt and Moore, it would seem that the water of at least one spring at Hot Springs has an activity of over 100×10^{-10} curies per liter. It would be interesting to know what the "administrative reasons" are which have prevented the publication of the whole truth concerning Hot Springs.

DRUGS WITH THERAPEUTICALLY SUGGESTIVE NAMES

To the Editor:—The following is the copy of a label on one of Merrell's bottles found by me at the company store at Berryburg:

100 PILLS GONORRHEA, 3 GRAINS

Pulv. Cubebs	1¼ gr.
Solid Copaiba	1¼ gr.
Sulph. Iron Exsic.	¼ gr.
Venice Turp.	¼ gr.

Dose 1 to 3.
From the Laboratory of the

WM. S. MERRELL CHEMICAL CO.
Manufacturing Chemists, Cincinnati, Ohio

I should like your opinion as to the sale of drugs by a large drug firm like that of William S. Merrell, which is supported by the physicians of this country.

R. D. STOUT, M.D., Berryburg, W. Va.

ANSWER.—Claiming that physicians demand that they be supplied with "a pill for every ill," most pharmaceutical houses supply not only Pills Gonorrhea, but also Pills Spermatorrhea, Pills Leukorrhea, Pills Dysmenorrhea, etc. On examining the price-lists of the larger pharmaceutical houses we find that Pills (or Tablets) Gonorrhea having essentially the composition given by our correspondent appear in the catalogues of Eli Lilly & Co., Frederick Stearns & Co., Parke, Davis & Co., and Sharp and Dohme, while Tablets Gonorrhea having a different composition are listed in the price-list of the H. K. Mulford Company.

The objection to therapeutically suggestive names for medicinal preparations has often been discussed in THE JOURNAL. The practice is an invitation to the thoughtless physician to prescribe without due consideration of the patient's needs and suggests counter-prescribing to the pharmacist. That the naming of remedies after the diseases in which they are to be used is not an economic necessity is best illustrated by the fact that E. R. Squibb and Sons are eliminating such therapeutically suggestive titles from their price-lists.

THE RECTOVESICAL POUCH

To the Editor:—Referring to Abstract 126 in THE JOURNAL, Sept. 27, 1913, p. 1082, I should like to ask if the term "pouch of Douglas" can be applied to the male? Embryologically speaking, there may be a pouch of Douglas in a man, but is this the case from a clinical-anatomic point of view—that is, has a man a pouch of Douglas? I understand that this pouch is formed by the recto-uterine folds of the peritoneum. I have recently had it demonstrated to me that a man could have "hysteria."

FRANK A. WOODWARD, M.D., Los Angeles.

ANSWER.—We know of no authority in English for giving Douglas any claim to the reflection of the peritoneum in front of the rectum in males, but the Germans are more generous and connect his name with that region in both sexes. Of the two patients referred to in the abstract, one was a *Wirthschaftsbesitzer*, the other a *Bauer*, and the sentences in question in the original German are: Zunächst rechter Pararektalschnitt zur Entleerung und Drainage des Douglasraumes and reichliche Spülung aller Teile der Bauchhöhle wobei fäkulente Massen, namentlich aus dem Douglas, ausgeschwemmt werden.

CATHETERIZING THE NEW-BORN—PROPER TIME OF CIRCUMCISION

To the Editor:—1. How long should we wait before catheterizing a new-born baby when it does not micturate from birth, and how many hours can we wait before repeating?

2. If the foreskin of a new-born baby is such that a circumcision is required, at what age is it advisable, in cases in which it does not obstruct micturition?

L. T. A. HOTTENDORF, M.D., Bloomington, Idaho.

ANSWER.—1. The first question calls attention to a bad practice which seems to be somewhat wide-spread, namely, catheterizing a new-born baby. It is unjustifiable, harmful and not sanctioned by the best authorities. Absence of micturition in the new-born is due to lack of urine in the bladder. The renal secretion is usually scanty for the first two days and often less than one ounce. The kidneys frequently contain infarcts of urates and uric acid. The proper management is to give water by the mouth or by enemas to supply a solvent and help to "wash out" the kidney. Warm baths may also be of advantage.

2. A large healthy child that is gaining in weight may be circumcised in the second week after the navel has healed. A puny baby should not be circumcised until it has begun to gain. It is generally possible to release the foreskin by the dilating and breaking of the adhesions to the glans. This operation may require more care for three or four days than a circumcision, but it has its advantages.

"THE WONDERS OF RECENT PATHOLOGIC RESEARCH"

To the Editor:—I have been asked to furnish material for a paper entitled "The Wonders of Recent Pathologic Research," to be read before the local branch of the Woman's Federation, and I herewith pass the request on to you.

FRED LEE MORSE, M.D., Lake Odessa, Mich.

ANSWER.—The following popular articles may be of service:

Big Battles Against Disease (The Conquest of Germs), *Outlook*, Dec. 24, 1910.

Mayo, Earl: Big Battles Against Disease (Advance in Surgery), *Outlook*, Jan. 28, 1911.

Williams, Henry Smith: The Struggle for Immunity, *Harper's Magazine*, December, 1911.

Baldwin, Francis Elbert: The Background of the Opium Conference at The Hague, *Rev. of Rev.*, February, 1912.

Kingsbury, John A.: No Tuberculosis in New York State in 1920, *Rev. of Rev.*, April, 1910.

Carrel, A.: Transplantation of Organs, THE JOURNAL, Nov. 25, 1905, p. 1645.

Carrel, A.: Permanent Life of Tissues Outside of Organism, *Jour. Exper. Med.*, May, 1912.

Carrel, A.: The Preservation of Tissues and Its Application in Surgery, THE JOURNAL, Aug. 17, 1912, p. 523.

Immunity Against Poisons, *Scientific American*, May 25, 1912.

Immunity and Its Mechanism: The Battle Between the White Blood-Corpuscles and Invading Bacteria, *Scientific American*, June 8, 1912.

Pearce, R. M.: Research in Medicine, *Popular Science*, August, 1912.

Gorgas, William C.: Sanitation of the Tropics, with Special Reference to Malaria and Yellow Fever, THE JOURNAL, April 3, 1909, p. 1075.

Gorgas, W. C.: Sanitation at Panama, THE JOURNAL, March 30, 1912, p. 907.

Gorgas, W. C.: Part Sanitation is Playing in the Construction of Panama Canal, THE JOURNAL, Aug. 31, 1909, p. 597.

Gorgas, W. C.: Conquest of the Tropics for the White Race, THE JOURNAL, June 19, 1909, p. 1967.

Ferrell, John A.: Hookworm Disease, pamphlet issued by the N. C. Board of Health.

TREATMENT OF TUBERCULOSIS BY WORK AND EXERCISE

To the Editor:—What articles covering work and exercise in the treatment of consumption have appeared recently? M. D. S.

ANSWER.—The following articles have reference to treatment of consumption by work and exercise:

Flinn, J. W.: Rest and Repair in Pulmonary Tuberculosis, THE JOURNAL, Aug. 16, 1913, p. 466.

Teleky, L.: Choice of Occupation with Regard to Tuberculosis, *Wien. klin. Wchnschr.*, March 13, 1913; abstr., THE JOURNAL, April 26, 1913, p. 1336.

Holcomb, S. R. C.: Graduated Labor in Pulmonary Tuberculosis, *Military Surgeon*, February, 1913; abstr., THE JOURNAL, Oct. 26, 1912, p. 1564.

Allan, J. W.: Graduated Labor at Bellefield Sanatorium, *Glasgow Med. Jour.*, January, 1911; abstr., THE JOURNAL, Feb. 4, 1911, p. 384.

Francine, A. P.: Rest, Exercise and Food in the Management of Tuberculosis, *New York Med. Jour.*, Dec. 31, 1910; abstr., in THE JOURNAL, Oct. 29, 1910, p. 1589.

Paterson, M.: Treatment of Pulmonary Tuberculosis by Graduated Rest and Exercise, *Practitioner*, January, 1913.

MacCorison, C. C., and Burns, N. B.: Method of Recording Exercise Data in Sanatorium for Consumptives, *Boston Med. and Surg. Jour.*, May 9, 1912.

Burns, N. B.: Respective Significance of Rest and Exercise in Treatment of Phthisis, *Boston Med. and Surg. Jour.*, May 9, 1912.

Robin, A.: How Tuberculosis is Cured by Work, *Therap. Gaz.*, December, 1911.

Fletcher, W.: The Need of Physical Exercise in the Treatment of Tuberculosis, *Wisconsin Med. Jour.*, June, 1910.

The Snare of the Loaded Rectum.—A loaded rectum is another source of difficulty. Some swelling may be felt behind the uterus and vagina, and we must beware of believing—and especially of saying—that there is a tumor there until a finger has been introduced into the rectum. A patient's confidence in her medical attendant is shaken by the extrusion of her tumor into the bedpan.—Arthur E. Giles, in (London) *Clinical Journal*.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

HOSPITAL REFORM IN GREAT BRITAIN

Great Britain is at present years ahead of this country in some lines of constructive activity which can be regarded as socialistic or not, depending on the point of view. The national insurance act, providing state medical attendance for about fourteen million persons, has been commented on frequently in previous issues. This is regarded by some as plain socialism, by others rather as state activity for self-protection. That it has prepared the way for the consideration of other forms of state benefit is beyond question. In a recent issue of the *British Medical Journal* appears an article by the chairman of one of the principal divisions of the British Medical Association, advocating a voluntary medical service, which would be supported by the state and which would furnish professional services at a fixed price per week, as well as paying disability and old-age pensions. As a corollary of this proposition, the hospital situation in rural districts is also discussed. Starting out with the proverbs that "health is wealth" and that "prevention is better than cure," the writer concludes that it is to the public interest to secure the highest possible skill among the largest possible percentage of doctors, and that, as this is true, physicians should not only be assured the means and the possibilities of acquiring knowledge and skill through proper training and medical schools, but, after graduation, they should be in a position steadily to increase their knowledge and skill by access to hospitals in which proper facilities for treatment are available. Criticisms of the present situation are that the existing hospitals are becoming more and more centralized, that they are limited principally to the larger cities and that the number of physicians who can secure the necessary training and experience as members of the staff is limited. The result is that the practitioner who locates at a distance from a properly equipped hospital not only does not increase his knowledge and skill by experience, but does not even retain what he has, on account of lack of opportunity to use it. The result is that, with the exception of those men whose location or ability secures them appointments on the staff of some hospital, physicians soon become rusty in their knowledge and limited in their usefulness. The remedy for this situation would be the multiplication of small hospitals, in proportion to the density of population, erecting them in the densely populated outlying districts of cities, as well as in country communities, placing them in open, healthy places convenient to main lines of travel, allowing every physician to send patients to any available hospitals and to continue treating them while in the hospital, requiring every patient to pay for his care, and compensating every physician in proportion to his hospital attendance. The results which the writer anticipates from such a plan are less damage to patients on account of removal to distant hospitals, increasing ability and efficiency of physicians and increased benefit to the patients. The system, according to the writer in the *British Medical Journal*, would be self-supporting and possibly profit-producing, after deducting the initial expense of building and equipment, which could be obtained by government loans. The capital invested would be soon saved to the community by the improved healthfulness and the shortened periods of recovery in cases of sickness. A state-aided, voluntary medical service working through a system of centralized hospitals would, in the writer's opinion, "prove an incentive to the knowledge and practice of the rules of health which would be a benefit to the community. . Hospital treatment would be extended to the middle classes, while hospitals could be used as centers for public lectures on hygiene, rearing of infants, use and abuse of alcohol, etc. Last but not least, the anomaly of the most skilled of the greatest profession being expected to give of their best gratuitously, while every other trade and profession are paid "according to their skill," would cease. Whether the results indicated would be as sweeping as this is open to argument. Whatever may be the social conditions in Great Britain, the public in the United States is probably not ready for a state-aided medical service now and will not be for many years, if ever. But the hospital situation is practically the same in both countries. In this country, as in England, there are too few hospitals. The hospitals in many cases are too highly centralized, they are too largely restricted to large cities, the distance which patients must be carried is, in many cases, too great and the number of physicians having access to these hospitals for the treatment of patients and for the acquirement of professional skill is too small. The development of small hospitals in the small towns and in the rural communities, and the substitution of a number of hospital units in various parts of the larger cities, in place of a single institution of enormous size and cost, are some of the most important and necessary of reforms.

CHECKING UP ON THE HEALTH DEPARTMENT

The disastrous flood in the early part of 1913 not only caused destruction of property in Dayton, Ohio, but also left the city in a bad sanitary condition. By prompt and energetic action, however, epidemics were prevented and the general health of the citizens was not seriously affected. In the course of the rehabilitation of the city, many reforms, governmental and otherwise, were instituted, one of them being the adoption of a modified commission form of government, the principle of which is that the direction of a city's affairs is a business proposition which demands the application of business principles by a business manager. A bureau of municipal research[1] was also established, and among its first problems was the promotion of the health of the city. In order to have a correct basis on which to work an expert from the School of Public Service of the New York Bureau of Municipal Research was employed to make a survey of public health with regard to the efficiency of the health service of the city. One of the most important conclusions of the report is—and well it applies to almost every city in the land—that the want of a better regulation of health and sanitation was not owing either to ignorance of conditions or to lack of efficiency on the part of the local board of health, but "largely and chiefly to the mistaken policy which leads to an insufficient appropriation for the needs of the department; to lack of cooperation by some departments of the city government, and largely to the apathy of the people in matters pertaining to public health." Beginning with headquarters, the report shows that the "health office is badly lighted, poorly arranged and inadequately equipped," and that, as a result, the efficiency of the department is diminished fully 25 per cent. Lack of full-time officers is also given as a cause of decreased effectiveness. Referring to the question of appropriations, it is said that during 1912 a sum a little in excess of twenty-one thousand dollars, or about thirteen cents per capita, was expended for health conservation, while the appropriation for such purposes in a city the size of Dayton should be at least eighty or eighty-five cents per capita. As a consequence of, or at least under this inadequate expenditure, three epidemics of contagious and preventable disease occurred in 1912 which, on account of closure of schools, financial loss on account of sickness and death, etc., cost the city, as estimated, approximately two hundred thousand dollars, or practically ten times the amount of the health appropriation. When a proposition such as this comes up to the new business manager of Dayton, if he applies even ordinary business principles, it should not be difficult to predict his recommendation. The report of the expert takes up all phases of the health service of Dayton and makes constructive suggestions in regard to its betterment. Conditions in Dayton are cited, not to show the deficiencies of its health department, which was no doubt better than those of many other cities, but to emphasize once more the apathy

1. Bull. Ohio State Board of Health, September, 1913.

of the people and their representatives in local government in regard to health matters, and the ridiculously inadequate appropriations for the work of sanitation and disease prevention. No expenditure or investment could possibly bring larger or more satisfactory returns.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, State Capitol Bldg., Little Rock, November 11-12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bank Bldg., Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

MAINE: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

NEBRASKA: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

SOUTH CAROLINA: Columbia, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

TEXAS: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

WEST VIRGINIA: Hotel Chancellor, Parkersburg, November 10. Sec., Dr. S. L. Jepson, Wheeling.

New Mexico July Report

Dr. W. E. Kaser, secretary of the New Mexico State Board of Health and Medical Examiners, reports the written examination, held at Santa Fe, July 14-15, 1913. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Four candidates were licensed on presentation of satisfactory credentials and one through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1913)	93.7
Barnes Medical College, St. Louis	(1909)	82.5

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS

College	Year of Graduation
University of Louisville	(1912)
Tulane University	(1897)
Baltimore Medical College	(1891)
Vanderbilt University	(1894)

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, St. Louis	(1909)	Oklahoma

South Dakota July Report

Dr. P. B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the oral and written examination held at Pierre, July 8-9, 1913. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 16, of whom 15 passed and 1 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1913)	88, 91
College of Physicians and Surgeons, Chicago (1911) 84; (1912) 79, 89; (1913) 90, 90.		
Rush Medical College	(1909)	89
Chicago College of Medicine and Surgery	(1913)	91
University of Michigan, College of Medicine and Surgery	(1912)	86.
Barnes Medical School	(1904)	76
Beaumont Hospital Medical College	(1897)	84
Missouri Medical College	(1886)	85
University of Nebraska	(1898)	79
Temple University	(1910)	90

FAILED

College	Year Grad.	Per Cent.
American Medical College, St. Louis	(1912)	64

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Keokuk	(1876)	Nebraska
Kansas City Medical College	(1901)	Oklahoma
John A. Creighton Medical College	(1912)	Nebraska

Maryland June Report

Dr. J. McP. Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination, held June 17-20, 1913. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 135, of whom 76 passed and 25 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1912) 78, 84; (1913)	82
Maryland Medical College (1911) 77; (1912) 77, 78, 79.		
College of Physicians and Surgeons, Baltimore (1913) 75, 80, 83, 88.		
Baltimore Medical College (1912) 78; (1913) 82, 85.		
University of Maryland (1911) 78; (1912) 79, 79, 79; (1913) 75, 76, 76, 76, 78, 81, 82, 83, 83, 84, 84, 85, 85, 87, 88.		
Johns Hopkins University (1906) 80; (1911) 86; (1912) 86; (1913) 79, 81, 81, 82, 82, 83, 84, 84, 84, 85, 85, 86, 86, 86, 86, 86, 87, 87 88 88 88, 88, 90. 90.		
University of Pennsylvania	(1911) 88; (1913)	90
Jefferson Medical College	(1912) 86; (1913) 80, 85, 85.	
Woman's Medical College, Pennsylvania (1910) 75; (1912) 85; (1913) 84, 85.		
Medico-Chirurgical College of Philadelphia (1912) 80; (1913) 82		
Medical College of Virginia	(1913)	75
McGill University	(1908)	92
University of Berlin, Germany	(1905)	78
University of Vienna	(1906)	80

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Baltimore	(1913)	72
Johns Hopkins University	(1913)	69
Baltimore Medical College	(1913)	64
University of Maryland (1911) 60, 71; (1912) 74; (1913) 69, 73, 74.		
Maryland Medical College (1909) 67; (1912) 56, 59, 65, 67, 68, * *; (1913) 68.		
College of Physicians and Surgeons, Boston	(1911)	64
Ohio Eclectic Medical College	(1912)	64
Jefferson Medical College	(1902)	*
Temple University, Pennsylvania	(1913)	71
Meharry Medical College	(1913)	59, 67
Medical College of Virginia	(1913)	72

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University, D. C.	(1904)	W. Virginia
Chicago Medical College	(1890)	Minnesota
Maryland Medical College	(1905)	Georgia
Johns Hopkins University (1906)	North Carolina; (1910)	Missouri; (1911) Ohio.
University of Maryland	(1909)	N. Carolina
College of Physicians and Surgeons, Baltimore (1910-2)		W. Virginia
University of Pennsylvania	(1888)	Delaware
Jefferson Medical College	(1898)	Georgia

* No grade given.

The following questions were asked:

ANATOMY

1. Describe upper extremity of humerus, including attachments of muscles. 2. Name cavities of the heart and describe the valves. 3. Name salivary glands and locate orifice of their ducts. 4. Give foramen of exit from cranium, distribution and function of the pneumogastric nerve. 5. Name muscles of the eyeball and eyelids, and give their nerve-supply. 6. Through what vessels does blood pass in going from the external saphenous vein to right index-finger? 7. Name muscles on back of leg. 8. Describe the pharynx. 9. Describe gross anatomy of the liver. 10. Describe the thyroid body.

CHEMISTRY

1. Distinguish between "chemical" and "physical" changes in matter and give an example of each. 2. (*a*) Define an acid. (*b*) Give formula of one inorganic acid and show how this formula fulfils the conditions stated in your definition. (*c*) Give the name and formula of one organic acid. 3. (*a*) Should a physician order iodid of potash and corrosive sublimate in the same solution, what chemical and physical changes would take place in the mixture? (*b*) Would the resulting products be harmful to the patient and, if so, which? 4. Complete the following equations: $MnO_2 + H_2SO_4 =$; $3H_2O + P_2O_5 =$; $C_2H_5OH + H_2SO_4 =$; $2KI + FO_2 =$. 5. Write the graphic formula of marsh gas and (*b*) illustrate by graphic formulae its relation to wood alcohol. 6. (*a*) What are carbohydrates? (*b*) Name three substances belonging to this group. 7. (*a*) Iodin—Give its (1) valence, (2) method of preparation, (3) test for iodin. (*b*) Give name and formula of one of its organic and one of its inorganic compounds. 8. How would you know that a given white powder was calomel and not ordinary bismuth? 9. On what chemical fact does Fehling's test for sugar depend? 10. (*a*) Give the

most important constituents of normal gastric juice. (*b*) What is the action of normal gastric juice on: (1) proteids, (2) fats, (3) carbohydrates in the ordinary course of digestion?

PHYSIOLOGY

1. Give reaction of the following and state cause of reaction: Gastric juice, blood, urine, and pancreatic juice. 2. Describe briefly the physical and morphologic changes of the leukocytes. 3. What are carbohydrates and what part do they play in the general metabolism? 4. Describe briefly the physiology of the clotting of blood. 5. Define anabolism, osmosis, dialysis and rigor mortis. 6. State some of the conditions which produce variations from the normal temperature of the body. 7. State briefly what is meant by the vasomotor nervous system. 8. Describe the fetal circulation. What changes in the circulation take place at birth? What is the physical condition of the child if such changes do not take place properly? 9. Describe the physiology of menstruation. 10. What is meant by secretions? What is the difference between external and internal secretions? Give examples of each.

PATHOLOGY

1. Describe *Trichina spiralis*, giving life cycle, and morbid anatomy of trichiniasis. 2. Mention two or more conditions that prevent the passage of urine from the male bladder, and describe the process which causes one of these conditions? 3. Mention six varieties of calculi and describe the formation and composition of one variety. 4. What are the signs of death? Sketch the method of doing a complete necropsy. 5. Give the pathologic changes occurring in acute bronchitis? 6. Mention the lesions of typhoid fever. What is a typhoid carrier and how recognized? How is antityphoid vaccine prepared 7. Describe the healing of an uninfected wound. 8. Give the characteristics of a malignant growth. Mention at least four varieties which affect the breast and describe one. 9. Discuss anaphylaxis. 10. Describe the morbid process occurring in a tuberculous hip which is untreated, resulting from bony ankylosis.

PRACTICE

1. Define: (*a*) Ulcerative stomatitis. What remedy is specific for this disease? (*b*) Argyll Robertson pupil. In what disease does it occur? (*c*) Arthritis deformans. (*d*) Anuria. Hematuria. Polyuria. (*e*) Phlebitis. Mention a disease in which it occurs as a late complication. 2. Define: (*a*) Nephrolithiasis and cholelithiasis. (*b*) Landry's paralysis. (*c*) Name the various valvular diseases of the heart. (*d*) Enteroptosis. (*e*) Dysphagia. Name some diseases in which it occurs. 3. Diagnosis—Define: (*a*) Tonic and clonic spasms. (*b*) Hemoptysis and hematemesis. (*c*) Sibilant and sonorous râles. (*d*) What is tic douloureux and how would you treat it? 4. What are the physical signs of pulmonary solidification and pleuritic effusion 5. Differentiate: Follicular tonsillitis and diphtheria. 6. Name the day of eruption in small-pox, chicken-pox, measles and scarlet fever. 7. Give diagnosis of intestinal obstruction and name three types. 8. Treatment. Give treatment of nephritis and name both types. 9. Being called to a case of pulmonary tuberculosis in its early stages what symptoms would you find, and what measures would you employ? 10. Pellagra. What are its symptoms and how would you treat them?

THERAPEUTICS

1. Explain the action of diphtheria and tetanus antitoxin as prophylactic and curative agents. 2. Write a prescription in Latin, without abbreviation, containing three ingredients which you would use in the treatment of acute pharyngitis. 3. Write a prescription in Latin, without abbreviation, containing four liquid ingredients; state conditions for which it is intended and give directions for its use. 4. Name three official preparations of ammonium and give their therapy. 5. Hyoscyamus: Its active principle, physiologic action and therapy. 6. Belladonna: Its active principle, physiologic action and therapy. 7. Digitalis: Its active principle, physiologic action and therapy. 8. Give an example of a prescription showing a chemical incompatibility and describe the incompatibility. 9. Give the physiologic action of nitroglycerin and indications for its use. 10. Name the chlorids of hydrargyrum, therapy, symptoms and treatment of poisons.

OBSTETRICS

1. Describe the changes that take place in the organs of the mother during normal pregnancy. 2. Give the classification of contracted pelvis. 3. Describe the sutures, fontanels and protuberances of the presenting fetal head. 4. What is kyphosis and its influence on labor? 5. Give the diagnosis of tubal pregnancy before rupture. 6. Mention the different methods of dilatation of the cervical canal for delivery of the fetus. 7. Give the indications for version. 8. What are the dangers in forceps delivery? 9. Describe the physiologic lochia. 10. Describe briefly the operation trachelorrhaphy.

SURGERY

1. Give symptoms and treatment of chronic purulent otitis media. 2. Name conditions which may cause inability to pass urine, with symptoms of each. 3. Give symptoms, diagnosis and treatment of Pott's disease in the dorsal region. 4. Symptomatology and treatment of acute glaucoma. 5. Give symptoms and treatment of a fracture of a rib. What complications may arise? 6. Give symptoms, diagnosis and treatment of cholelithiasis. 7. Give symptoms and signs of thoracic aneurysm. 8. Define surgical shock; give symptoms, signs and treatment. 9. A patient having received a severe blow over left temporal region, is unconscious for a time, paralysis coming on late. Discuss the possibilities. 10. Give symptoms, diagnosis and treatment of carcinoma of the rectum.

MATERIA MEDICA

1. Bismuth, betanaphthol, camphor and aspirin. The official preparations and dose of each. 2. Give source of sugar of milk, hexamethylenamin, phenol, pepsin and glycerin. 3. Name the alkaloids of nux vomica. 4. Belladonna. The official preparations and doses. 5. Cocain, codein, colchicum, colocynth. The official preparations and doses. 6. Define extracts. Give five official extracts with average dose of each. 7. Name three drugs which may produce a rash and describe such rash. 8. Write a prescription for thirty-six pills, for an adult, containing iron, quinin, strychnin and arsenic. 9. Name three external and three internal antiseptics and give strength in which they are generally used. 10. What are antitoxins? Name three. Give average dose and how administered.

Book Notices

MARRIAGE AND GENETICS. Laws of Human Breeding and Applied Eugenics. By Charles A. L. Reed, M.D., F.C.S., Professor in the University of Cincinnati. Cloth. Price, $1. Pp. 183. Cincinnati: The Galton Press, 1913.

In spite of the enormous amount of material recently published on marriage, sex hygiene and kindred topics, this book has a definite place and mission, and is certain to attract the attention and careful study of all those sincerely interested in social betterment. Not only on account of the high professional standing and personal prominence of the writer, but also on account of the manner in which the subject is presented, Dr. Reed's book will be accepted by the medical profession as one of the best discussions of marriage and eugenics which the physician can place in the hands of his patients. Its objects, as set forth in the introduction, are to "overcome the ignorance which in too many instances keeps innocent victims from protecting themselves and their offspring from disease and degeneracy," "to avert many of those conditions that destroy the possible happiness of the marriage state, and convert the bridal chamber into the anteroom of the divorce court." The carrying out of this purpose has made it necessary for the author to consider the laws of human breeding and to explain them in terms comprehensible to the lay reader. This has been accomplished by the formulation of ten fundamental laws of race perpetuation, which the author designates as "the decalogue of human breeding." The discussion of these subjects comprises the first half of the book, which consists of an introduction, stating the problems involved in general terms, and a discussion of the general laws of genetics, in chapters on life, continuity of human life, sexual efficiency, character units, inheritance, heredity, the human norm, growth and reproduction, food and fecundity, and natural selection. The second division is given to a consideration of social diseases under the heading of "Race Poisons," while the third and last part of the book, designated as "Applied Eugenics," discusses the details of such physical examinations and conditions as are necessary to detect unfitness for marriage, also a summary of the various characteristics transmissible from parents to offspring, and the conditions under which such transmission occurs. In spite of the enormous amount of ground covered, the book is concise and compact. It is, therefore, well adapted for the general public, as it omits all discussion over controversial points. Specially praiseworthy is the entire absence of the sermonizing and moralizing that characterizes many popular books on similar subjects. The facts regarding heredity, eugenics and degeneracy are given in plain, simple language, perfectly comprehensible to any one of average intelligence. The book is a valuable contribution to the popular literature on the subject and cannot fail to be of enormous social service.

DISEASE OF THE EAR. By Philip D. Kerrison, M.D., Professor of Otology, New York Polyclinic Medical School and Hospital. Cloth. Price, $5. Pp. 588, with 333 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This book is an index of the manner in which the subject of otology has developed in recent years. It is filled with information presented in concise and direct form with no unnecessary padding. Each subject seems to be given adequate treatment. The anatomic and physiologic aspects of the aural and surrounding structures are clearly and beautifully described and illustrated by numerous splendid drawings which cleverly illustrate the points aimed at. Surgical procedures are equally well described, and in matters of diagnosis and treatment the author displays the ripe judgment of large experience. It is equally satisfactory in the manner in which the more common and more simple affections of the aural apparatus are described, and in the more technical matters pertaining to the detection of impairment of the sense of hearing and the function of equilibrium and the intricate operations on the mastoid and the middle and internal ear. Chapters are included on tuberculosis of the ear, auditory nerve lesions of syphilis, and those following the use of sal-

varsan, a number of which have been reported. Serum and vaccine therapy in the treatment of aural diseases are also covered briefly, as are aural disturbances due to dental lesions, deaf-mutism and the question of adenoids. In an appendix, aural disease in relation to life insurance, artificial aids to hearing, the manner of recording histories, and various formulas for sprays and other applications are found. Unnecessary mention is made of a number of proprietary preparations, some of which are decidedly out of place in a book that makes a pretence of being scientific.

MODERN PROGRESS AND HISTORY. Addresses on Various Academic Occasions. By James J. Walsh, K.C.St.G., M.D., Ph.D., Dean and Professor of the History of Medicine at Fordham University School of Medicine. Cloth. Price, $2 net. Pp. 450. New York: Fordham University Press, 1912.

Physicians pay far too little attention to the history of their profession. The average physician knows little regarding medical knowledge, theories, or conditions of previous generations. Much of the inability of physicians to explain and counteract the fads and cults which are constantly springing up is due to their lack of knowledge of the rise and fall of many similar movements. A comprehensive review of the history of medicine with sketches of some of the great leaders and pioneers in scientific work should be one of the first things presented to the medical student.

Physicians of all ages and classes who are really interested in their profession will find many things to hold their attention in Dr. Walsh's book. It contains eleven addresses delivered on various occasions and all bearing on educational or scientific questions. The first chapter, "Prescriptions, Old and New," contains many interesting examples of old and curious prescriptions. The second chapter, on dentistry, shows the development of this art in early times and its progress to the present day. The chapter on "Professional Life and Community Interests" can be read with profit by every medical student. While every reader may not agree with Dr. Walsh in his general proposition that modern progress does not represent as great an advance over the accomplishments of previous generations as is generally supposed, no thoughtful reader can fail to find these essays both interesting and stimulating.

THERAPEUTICS OF THE GASTRO-INTESTINAL TRACT. By Dr. Carle Wegele. Adapted and Edited with Additions on the Diagnosis of the Diseases of the Esophagus. By Maurice H. Gross, M.D., Attending Gastro-Enterologist to the Har Moriah Hospital, and I. W. Held, M.D., Attending Physician to the Har Moriah Hospital. Price, $3 net. Pp. 329, with 54 illustrations. New York: Rebman Company, 1913.

The editors have undertaken the task of producing an American edition of Wegele's book, because in their opinion it is an especially conscientious and thorough treatise on the subject. In addition to translating and arranging the original material, they have added points of diagnostic interest in connection with the various diseases discussed, chapters on the esophagus, Roentgen-ray diagnosis of the stomach and intestinal diseases, and on the basis of their own researches, a chapter on the comparatively new subject of the duodenal tube. In this complete form the book should be of great use to those engaged in general practice, in that it gives concisely the therapy of many conditions whose care is extremely difficult. The literature includes all material published up to the time of going to press.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in College of Physicians and Surgeons, Baltimore, and John Ruhräh, M.D., Professor of Diseases of Children in College of Physicians and Surgeons, Baltimore. Fourth Edition. Cloth. Price, $4 net. Pp. 857. Philadelphia: W. B. Saunders Company, 1913.

Since the last revision in 1909 so many changes in opinions on diet and so many new facts have been added to the subject that a revision of this volume has been thought necessary. New tables are added and many of the chapters are entirely rewritten. A section on "Mechanism of Digestion" is also included. The chapter dealing with infant feeding contains practically all that is new and accepted on this subject. The value of the book as a handbook for the practitioner on a difficult subject needs no comment.

NIERENPHYSIOLOGIE UND FUNKTIONELLE NIERENDIAGNOSTIK IM DIENSTE DER NIERENCHIRURGIE UND DER INTERNEN KLINIK. Von Dr. Victor Blum, Privatdozenten für Urologie an der K. K. Universität Wien. Paper. Price, 4 marks. Pp. 121, with illustrations. Leipsic: Franz Deuticke, 1913.

The author has gathered the material on this subject up to the latter part of 1911. From a consideration of the various functional tests of the kidney, he concludes that modern scientific study of kidney lesions demands that functional tests be made constantly throughout the course of various kidney diseases. Apparently much material has been brought forth on this topic since the treatise was written. In view of this fact, it can form nothing more than a reference book for those interested in the subject.

PRACTICAL BACTERIOLOGY, BLOOD WORK AND ANIMAL PARASITOLOGY. Including Bacteriologic Keys. By E. R. Stitt, A.B., Ph.G., M.D., Medical Inspector, U. S. Navy. Third Edition. Cloth. Price, $1.50 net. Pp. 408, with 110 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

This manual continues to improve with each edition. Much has been added to the chapters on bacteriology and the work on protozoa has been completely revised. The chapter on immunity contains good discussions concerning the preparation of vaccines, agglutination tests, Wassermann reactions and anaphylaxis. A new chapter has been added on disinfectants and insecticides which gives particular application to methods of carrying out these important health procedures.

A REFERENCE HANDBOOK OF GYNECOLOGY FOR NURSES. By Catherine MacFarlane, M.D., Gynecologist to the Woman's Hospital of Philadelphia. Second Edition. Leather. Price, $1.25 net. Pp. 156, with illustrations. Philadelphia: W. B. Saunders Company, 1913.

A large amount of information is contained in this little book. Especial attention is given to the preparation for operations and the assistance which a nurse should give. As its name denotes it is a convenient handbook for ready reference.

Medicolegal

Liability of Parents for Medical Services Rendered to Adult Children

(Crowell vs. Donoho (Mo.), 153 S. W. R. 1082)

The Kansas City Court of Appeals affirms a judgment for the defendant in this suit on an alleged contract of employment to recover the reasonable value of services rendered by the plaintiff, as a physician and surgeon, to an adult daughter of the defendant. The court says that at the time the services were performed the defendant was a widow, one member of whose family was an unmarried daughter over 18 years of age, who fell ill. The plaintiff was called into the case in consultation, and recalled to perform an operation for appendicitis. Afterward a second operation was performed, and still later a third. The defendant paid the plaintiff's bills for the consultation and first operation, but he was not paid for the last two operations, and this suit was brought for the recovery of the reasonable value of his services in performing them. The defendant testified, and the court found, that the payments made by the defendant for the first two visits, though paid out of the defendant's funds, were made for the patient at her request, and were charged against her inheritance, the defendant being administratrix of her husband's (the patient's father's) estate. The plaintiff's theory of an implied contract of the defendant to become liable for his services must rest on the facts that the patient was a member of the defendant's family and that the plaintiff's compensation for a part of the services rendered was paid by the defendant apparently out of her own funds, though, in reality, out of funds belonging to the patient.

The defendant was under no legal obligation to provide her adult daughter with the services of physicians, and had she called the plaintiff into the case that fact, of itself, would not have raised an implied promise on her part to become responsible for the plaintiff's employment. The rule is well settled

that a mere request from a father to a physician to attend a child of full age, and for whom he is not bound to provide, and though sick at the father's house, raises no implied promise on his part to pay for such medical services. Still less, says the court in *Crane vs. Baudouine*, 55 N. Y. 256, may a promise be implied when there has been no special request by the parent to the physician, and no more than an acquiescence in his calls.

It was the duty of the plaintiff to know or to learn the true legal status of the patient, and what were her true legal relations to the defendant. If the court should hold that a parent could not be present in the sick-room of his adult child and exhibit usual parental interest and anxiety, without becoming liable to an attending physician called in by another at the patient's request, it would do violence to a wise and humane rule of universal recognition that has for its object the proper care of the sick and helpless.

The only fact remaining on which an implied promise of the defendant might be founded with any show of reason was that of the payment on behalf of the patient of the plaintiff's first two bills. It is said in *Morrell vs. Lawrence*, 203 Mo. 373, that a contract should be implied when the circumstances or conditions may be such as to lead the physician to believe, and to charge the father with knowledge that the physician does believe, that the father is undertaking to pay for the services to be rendered. In that case the father called the physician under circumstances, as pointed out in the opinion, clearly indicative of a purpose and assurance on his part that he would pay for the services; but here the plaintiff was called under circumstances that pointed to the patient as his only employer. The patient was too ill to attend to business affairs, and naturally would be expected to select her mother as her agent. Had the defendant paid the plaintiff in money, he would not have been justified in believing that she was using her own money and intended to be regarded as his employer, or as acting in any other capacity than her daughter's agent. Certainly the mere fact that for convenience she gave him her own bank checks was no indication of a purpose to vary the ordinary legal relationships obtaining in such instances. It is a very common thing for an agent to make disbursements for his principal's account in such manner, and the plaintiff was not entitled to draw any special conclusions from the method of payment employed.

The plaintiff appeared to have taken too much for granted. His cause was predicated on presumptions he had no legal right to indulge. The court does not say that the parent of an adult child may not become bound to pay for medical services rendered the child on an implied promise, but it does hold that such promise must rest on facts and circumstances that would be incompatible with any other inference than that the parent intended to be regarded by the physician as his employer. There were no circumstances in this case indicative of such intention, and the court concludes that the trial judge committed no error in rendering judgment for the defendant.

Evidence of Fall Being Primary Cause of Operation—Information Obtained by Subsequent Examination of Removed Parts Privileged

(Jones vs. City of Caldwell (Idaho), 130 Pac. R. 995)

The Supreme Court of Idaho holds that when a woman walking on the sidewalk of a city fell through a hole in the walk, and it was thereafter found necessary for her to undergo a surgical operation, and there was doubt and conflict in the evidence as to whether the operation was caused primarily by the fall or by a previously existing diseased and affected condition of the parts operated on, and expert testimony introduced was indefinite and uncertain as to the primary cause which rendered the operation necessary, the fact that the operation was considered necessary by the attending physicians soon after the accident occurred, and that the operation was actually performed, were circumstances which the jury had a right to consider in concluding that the fall was the primary cause of the operation and of the consequent damages sustained.

When the attending physician deems a surgical operation necessary on his patient, and another physician or surgeon is called to assist in the performance of the operation, and actually performs the operation or assists therein, and subsequently, on a trial which brings in issue the facts and circumstances which led up to and rendered necessary the operation, any information acquired by the attending physicians at the operation or subsequently acquired by examination of the parts removed by the operation is privileged information under the provisions of Section 5958 of the Revised Codes, and cannot be given in evidence without the consent of the patient, Subdivision 4 of Section 5958 providing that "A physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient." The fact that certain information was gathered from examination and inspection of the injured or diseased parts removed by the operation a considerable time after the operation had been performed and the physician had acted and prescribed for the patient, does not change the privileged character of the information and permit the physician to testify concerning the same.

In this case the city contended that the operation which resulted in the removal of the fallopian tube had been performed, the tube had been removed, and that it was no longer necessary to make an examination of the removed portion, and that the information acquired from the examination was not necessary to enable the witness to prescribe or act for the patient. Literally and technically speaking, this might be true; but such a construction of the statute would rob it of its true spirit and the purpose and intent thereof. Had the physician not been called on to perform this service in his professional character, he would never have been able to acquire the information about which the city sought to have him testify. He acquired it as a physician and surgeon and in no other capacity; and he acquired it as physician and surgeon for the plaintiff, and by reason of his employment in his professional capacity to serve the plaintiff.

Liability for Negligence in the Administration of an Anesthetic—Competent Evidence and Burden of Proof

(Spain vs. Burch (Mo.), 154 S. W. R. 172)

The Springfield Court of Appeals reverses a judgment rendered for the plaintiff in this suit for damages for the death of his wife, caused, as was alleged, by the malpractice of the defendant, as a physician, in administering to her an anesthetic. The court does this, remanding the case for a new trial, because there was not, in the record as presented, sufficient evidence to carry the case to the jury on the ground of negligence in not making a proper examination of the physical condition of the patient to ascertain whether or not her physical condition was such as to make it safe and proper to administer the anesthetic to her; but the court is not prepared to say that there was not sufficient evidence to take the case to the jury on the ground of negligence in not using due and ordinary care in administering the anesthetic, and in watching and caring for the patient while administering it, and while she was under its influence.

The court says that it recognizes the rule that it is not sufficient that a physician possess ordinary skill, and that he use proper and approved medicines and appliances in treating the patient, but also that in treating a particular case he must in that case use such reasonable skill and diligence in applying or administering the medicine and means used. The question to be determined was whether or not the defendant did, in this particular case, use ordinary skill and diligence in administering the anesthetic to the deceased.

Nitrous oxid was the anesthetic administered, through the Teters apparatus, in an examination for hemorrhoids. The examination was made with the assistance of another physician, called in for that purpose, and a woman office assistant. It occupied no more than from three to five minutes.

The evidence of a large number of dentists and physicians, familiar with and skilled in administering this particular

anesthetic, was to the effect that if a person is in apparent good health that no examination whatever is usual or necessary; that the danger from the use of this anesthetic is almost a negligible quantity, so far as the physical condition of the patient is concerned. This, however, would not prevent the case going to the jury, provided there was any substantial evidence offered by the plaintiff that ordinary skill and diligence demanded a more careful examination, or one nearer the time of the operation, than that made by the defendant the previous afternoon.

When physicians and dentists are alike used as experts on the question of the proper use of this anesthetic, and it is shown that dentists use it more often than physicians, and are often more proficient and skilled in its use than an ordinary practitioner of medicine, the usual and customary methods of using it by dentists, skilled in that respect, is a legitimate source of inquiry, and such evidence should not be excluded. The skill and proficiency by which a physician administering an anesthetic is to be judged is not to be measured by the usual and ordinary skill possessed by other physicians only, but extends to that possessed by other persons, whose occupation and study give them an equal or better knowledge of the right methods of its use than is possessed by a general practitioner of medicine.

While the fact in this case was that death occurred during the time of administering the anesthetic to this patient, yet that fact alone would not support a verdict for the plaintiff. There must be a causal connection amounting to negligence between the accident and injury. The burden was not on the defendant to show the cause of the accident. The burden was on the plaintiff to prove the negligence affirmatively.

Nor would the fact that the jury had a right to disbelieve the testimony of the defendant, as to his having made, on the previous afternoon, a careful examination of the organic functions of the deceased, help the plaintiff on this point. It is true, as the plaintiff contended, that when an issue of fact is controverted, and oral evidence must be relied on to show that fact, the jury has a right to find against the oral testimony, although it is not contradicted. But this doctrine has not been, and should not be, carried to the extent that, when the burden is on the plaintiff to show the failure to do any act, and the defendant's evidence that he did do it is uncontradicted, then the jury may not only disbelieve his evidence, but may take such disbelief as supplying the lack of affirmative evidence required of the plaintiff.

Autopsies and Public Health.—Closely connected with the problem of correct vital statistics is the question of medical competency. Many death certificates do not give the true cause of death because of the carelessness, neglect or intent of the physician; many, however, and these are numerous, are faulty because of the ignorance of the physician as to the real cause of death. Definite proof in many instances can be furnished only by autopsies. This brings us to a subject in connection with which it is entirely within the facts to say that the advancement of medical science and the promotion of public health are greatly hampered in the United States by the groundless though understandable prejudice of the general public against the extension of the privileges of hospitals in the matter of performing autopsies. This prejudice arises largely from ignorance of the importance of post-mortem examination and from popular confusion of autopsies with anatomic dissections. Unfortunately, there is a continuous effort on the part of zealous but misguided individuals and organizations to increase this prejudice by misrepresentation of the facts. The great value of autopsies, not only to the medical profession but also to the members of the general public whom that profession serves, is beyond question. If we wish to add to our store of medical knowledge, if we wish to turn out good physicians, if we are to have reliable mortality statistics, there must be more post-mortem examinations in the hospitals.—Corwin and Mayo, in *The Outlook*.

Society Proceedings

COMING MEETINGS

A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

STATE MEDICAL SOCIETY OF WISCONSIN

Sixty-Seventh Annual Meeting, held at Milwaukee, Oct. 1-3, 1913

The President, DR. A. J. PATEK, Milwaukee, in the Chair

Educational Reform in Medicine

DR. A. J. PATEK, Milwaukee: A wave of educational reform in medicine has swept over the country, reducing the number of medical institutions from 166 in 1907 to 110 in 1913, as the first step in that direction. I recommend the appointment of a committee to investigate the evil of fee-splitting in Wisconsin, and report at the next annual meeting; also the appointment of a committee of five for the study of the cancer problem in Wisconsin, with full scope to make the investigation as broad as it may wish, the expense to be borne by the society. The passage of the workmen's compensation act in the state will bring the physicians into closer union with industrial enterprises, and will, to a degree at least, eliminate the ambulance chaser.

Consideration of the subject of eugenics has evolved a state law compelling a medical attest of the health of one of the contracting parties, forbids consanguineous marriages, bars from marriage the epileptics, insane and those having transmissible diseases, and provides for sterilization of habitual criminals, insane, feeble-minded and epileptics in public houses and asylums, all subject to reasonable restrictions.

Intraspinous Medication in Paresis and Tabes

DR. W. F. LORENZ, Mendota, Wis.: Intraspinous medication is a simple procedure. The Swift-Ellis method of using blood-serum has been irritating, and caused alarming symptoms. The direct injection of a dilute solution of neosalvarsan in doses of 0.0006 gm. in the male, and 0.0003 gm. in the female, caused no untoward symptoms. The direct use of neosalvarsan has apparently as much effect as the Swift-Ellis blood-serum. Intraspinous medication is a valuable adjunct in the treatment of early paresis.

DISCUSSION

DR. L. M. WARFIELD, Milwaukee: In a series of experiments at the Milwaukee County Hospital we did not use the Swift-Ellis method, thinking it would be more advisable to put the salvarsan directly into the spinal canal in dilute solutions; experiments were made to find the correct dosage, in which the salvarsan proved a tremendous irritant to the spinal meninges, and we have been injecting 0.0004 mg. in 10 c.c. of fluid, and the patients have shown a marked improvement. The most valuable features of the examination of the spinal fluid are, first, the cell count; second, the globulin content.

DR. W. F. BECKER, Milwaukee: The treatment by salvarsan does not yield so good results in the parasyphilitic cases, tabes and paresis as it does in direct cerebral syphilis or postsyphilis; but the returns are coming in very fast, and everything seems favorable to the establishment of a satisfactory method of treatment.

Anesthesia

DR. W. E. BANNON, La Crosse, Wis.: Anesthesia as generally administered has not been accorded sufficient care, and is often grossly abused by incompetent anesthetists; gas, oxygen and novocain anesthesia in the hands of experienced and competent anesthetists, and with a skilled operator, is a safe and satisfactory anesthetic for most cases of major operations; the successful use of nitrous oxid, oxygen and novocain requires, on the part of the surgeon, greater skill in operating and more careful manipulation of the tissues,

and definite knowledge of the nerve supply to regions to be blocked with the novocain, and cooperation between the anesthetist and operator. Preliminary small doses of morphin are of more benefit than harm; much lighter ether anesthesia than is usually given is sufficient for most surgical procedures.

DR. J. L. YATES, Milwaukee: I made a series of experiments on rabbits with morphin, morphin and scopolamin, nitrous oxid and oxygen, ether, chloroform and cobra venom. The observations forced the conclusion that there is no such thing as a safe anesthetic, and with it the realization that so long as poisons have to be given, the least amount of the least noxious should be administered—nitrous oxid, expertly given, often with a little ether vapor, and always mixed with sufficient oxygen to prevent cyanosis, or ether, is safest in the hands of an untrained anesthetist.

The Local Reaction Following Intradermal Injections of Tuberculin as a Guide to Tuberculin Therapy

DR. O. E. LADEMANN, Milwaukee: The administration of tuberculin consists in the application of the intracutaneous tests as defined by Mantoux as a guide to dosage. A local skin reaction consisting of redness and tenderness, measuring from 4 to 6 cm., appearing within twenty-four, forty-eight or seventy-two hours at the site of the injection, is a dose which apparently gives a pronounced local reaction in addition to stimulating the defensive powers and yet shows no evidence of a constitutional disturbance.

DISCUSSION

DR. C. H. STODDARD, Milwaukee: The cases which at the present time offer the greatest chances for control from the use of tuberculin are the surgical cases, the laryngeal cases, and those cases in which cavities are not as yet formed, and tubercle bacilli are not being thrown off. There is a growing skepticism in regard to the benefits of tuberculin treatment. I am willing to abandon it if something better is brought forward.

Osteitis Fibrosa Cystica of the Lower Jaw

DR. J. F. SMITH, Wausau, Wis.: It is difficult to differentiate these cases from sarcoma. The Roentgen ray is a valuable diagnostic agent. Amputation, resection and other operations formerly resorted to are entirely unnecessary, when we recognize the benign character of the growth. It is a mistake to inject bismuth paste or any foreign material into the cavities; a small muscle flap should be transplanted into the cavity, and the wound closed primarily.

DISCUSSION

DR. C. A. EVANS, Milwaukee: It is important to diagnose this disease, the cases being rare; a bone cyst may be looked on as a benign tumor, as far as treatment is concerned. An exploratory incision should be made in every case before a radical operation. The Roentgen ray is an invaluable help in the proper diagnosis.

The Modern Treatment of Syphilis

DR. L. SCHILLER, Milwaukee: The complement-fixation reaction is necessary in order positively to determine anything concerning the disease after the active symptoms have disappeared, and the physician is now able to determine the presence or absence of syphilis, regardless of the statements of the patient. The next advance in the treatment is the discovery of salvarsan as an efficient remedy, notwithstanding its rather stormy progress.

DR. C. F. HOOVER, Cleveland: In spite of the long clinical career that mercury has had, it is only since the Wassermann reaction, the discovery of the spirochete and the production of salvarsan that we actually know how to use mercury. The only real field for salvarsan is in those patients who cannot tolerate an adequate amount of mercury.

DR. O. FOERSTER, Milwaukee: The vital point in the present-day treatment is the possibility of sterilization of the central nervous system, and the prevention of later occurrence of tabes and paresis. One-half of the patients treated three years ago with salvarsan show absolutely normal conditions. The effect of salvarsan is more definite and more lasting than that of mercury.

DR. C. A. BAER, Milwaukee: The changes in the cerebrospinal fluid appear very early in the disease, and that is the time to institute a very strong, heavy attack.

Extrasaccular or Sliding Hernia

DR. V. F. MARSHALL, Appleton, Wis.: Extrasaccular or sliding hernia of the large intestine or bladder has a peritoneal covering which is but partial; the condition is more common than was at first believed; it owes its development to an embryologic origin; relapses are frequent and its cure may tax the ingenuity of the surgeon to his utmost. A patient with hernia of sixteen years' duration left the hospital sixteen days after the operation, having made an uneventful recovery.

DISCUSSION

DR. EDWARD QUICK, Milwaukee: In the operation we should be careful not to injure the blood-supply of the intestine which is contained in the hernia. Sometimes it is very difficult to isolate the contents of the hernia and the sac from the structures of the cord, and it has been found necessary by some operators to sacrifice the testicle in completing the operation.

The Serum Diagnosis of Pregnancy

DR. C. M. ECHOLS, Milwaukee: Fifty-seven tests were made according to Abderhalden's method. The test will probably never be simple enough for the general practitioner to carry out, but there is reason to believe that when done in properly equipped laboratories, Abderhalden's method will in the course of a year or so take its place with the Wassermann and Widal reactions in point of reliability.

DISCUSSION

DR. L. A. WARFIELD, Milwaukee: I have tried out the test in a limited number of cases at the Milwaukee County Hospital; but recently gave it up and confined myself to experiments on the detection of what are supposed to be amino-acids and products of proteolytic digestion in the urine. Can we diagnose the functional insufficiency of the kidney by means of this dialyzing test? If we can find a test which is simple, and which will enable us to prognosticate the onset of toxemia of pregnancy, we shall have advanced a tremendous step in the protection of the pregnant woman.

DR. DANIEL HOPKINSON, Milwaukee: The test requires the greatest of care, and if it were possible to substitute some form of complement fixation, it would be more reliable.

The Effect of Athletic Sports on the Heart

DR. C. R. BARDEEN, Madison, Wis.: The increasing amount of cardiovascular disease noted in this country by life insurance companies and others makes it important for the physician to make himself acquainted with the chief causes responsible for these conditions so that he can protect his patients. Overexertion in competitive sports, especially in schoolboys, is one factor. From 5 to 10 per cent. of freshmen entering the state university have cardiac hypertrophy with dilatation attributable to athletic sports. While in most cases there is good compensation, in many there are mitral murmurs and a myocardial irritability which not only keeps these students out of college sports but to some extent hampers their scholastic work in college. Practically all college students taking part in the major sports have hypertrophied hearts. While in many cases compensation is good, in a large number there is a myocardiac irritability sometimes accompanied by mitral murmurs which indicate somewhat serious lesions. In the past two years there have in addition been four cases of acute cardiac dilatation among the relatively few members of teams in the major sports to one case among the far greater number of students not members of teams. In the latter case the dilatation occurred while the student was running in the gymnasium.

Problems in Bone Surgery

DR. J. M. HITZROT, New York: In regeneration of bone my experience both clinical and experimental shows that in

the healing of the bone after fracture, the periosteum and the endosteum are the chief factors in the process of repair, and that the cortical bone has a relatively slight function, if any, in the formation of the new bone tissue. The best graft is one covered by periosteum and with endosteum on its inner surface. There is a wide variation in the results obtained by the free transplantation of the periosteum, which depends on a number of factors which influence bone formation in the periosteum, such as age, the presence of blood and fibrin, which can readily be demonstrated, and certain other as yet undetermined factors which seemingly cause a failure of bone production by the periosteum under apparently identical conditions. The endosteum is as important a factor in the regeneration of the transplanted bone as it is in the healing process in fracture.

(To be continued)

DELAWARE STATE MEDICAL SOCIETY

Annual Meeting, held October 13-14, 1913

The President, DR. L. A. H. BISHOP, Dover, in the Chair

Officers Elected

The following officers were elected for the ensuing year: president, Dr. William B. Orr, Lewes; vice-presidents, Drs. T. P. Davies, Farnhurst, and William Marshall, Milford; secretary, Dr. G. W. K. Forrest, Wilmington; treasurer, Dr. S. C. Rumford; delegate to the American Medical Association, Dr. H. W. Briggs, Wilmington.

Next meeting to be held Oct. 13-14, 1914, in Wilmington.

Disease of the Gall-Bladder and Bile-Ducts

DR. L. A. H. BISHOP, Dover: Suppurative cholangeitis is due primarily to an obstruction of the common bile duct due to a stone, with resulting dilatation of the gall-bladder and bile-ducts. The infective agent is usually the *Bacillus coli communis*.

Surgical Treatment of Tuberculous and Other Infected Joints

DR. J. J. JONES, Wilmington: Tuberculous joints are encountered most commonly among children from 3 to 5 years of age. Forty per cent. of cases involve the hip and 10 per cent. the knee. The other joints most frequently affected are the ankle, shoulder, elbow and wrist. As a general rule the tuberculous condition is found in the short bones. It is often thought that when we find a tuberculous joint or bone we should remove the affected portion, but with a little care a great deal can be done to save these parts. My practice is to inject an iodin solution at various points around the infected joint, and, if it is necessary to cut away any tissue, to fill up the opening with powdered boric acid and tincture of iodin, about 30 minims of the tincture to the ounce of powdered boric acid. I open up every knee-joint in which fluid is found. Any general practitioner can do this. After the fluid has been removed the main thing is to prevent its return. The patient should be kept at rest and given general treatment. The joint is kept in a wet bichlorid dressing and bandaged tightly for about four days in order to prevent the return of fluid. Two hypodermic injections of morphin are usually necessary on account of pain.

DISCUSSION

DR. GEORGE I. MCKELWAY, Dover: I think it is bad teaching that in every such case of fluid in the knee-joint the joint should be opened. We all see cases which recover promptly with no subsequent trouble, simply by absolute rest in the plaster-of-Paris bandage for one to two weeks. I think it is a very great mistake to say that any general practitioner can safely open the knee-joint. The men who do most of this sort of surgery caution that the most absolute and scrupulous asepsis is necessary in operating on the joints or bones. Everything should be done with instruments and parts not even touched with the gloved finger because of the exceeding liability to infection.

DR. D. W. LEWIS, Middletown: I take exception to Dr. Jones' advice to open all joints in which there is fluid. I consider it bad practice always to do that and also for those to do it who are not accustomed to it.

DR. J. W. STEELE, Dover: I do not agree with Dr. Jones' practice of opening up the joint. In a recent case with effusion into the knee-joint I gave the patient half a dozen cantharides blisters about the size of a nickel and told him to place one of these blisters on the knee every third night, treating it until the entire knee was circled. By the time this was done under absolute rest the fluid had almost completely absorbed.

DR. A. ROBIN, Wilmington: Three years ago I saw Dr. Jones of Liverpool operate on the knee-joint. He takes extreme precautions in preparing for the operation and never cuts without extraordinary care. In tuberculous troubles it has been found that tuberculin in larger doses than usually employed brings wonderful results. In bone diseases no diagnosis should be made unless a careful roentgenographic study has been made.

DR. J. J. JONES, Wilmington: In answer to criticisms about opening the knee-joint, I was speaking of tuberculous and infected joints. When you have an infected joint with a large quantity of fluid in it, it should be removed, for it will destroy the synovial membrane and cartilage and eventually may destroy the bone. No one would dare open the knee-joint without having everything thoroughly sterile.

Serum Therapy

DR. WILLIAM H. KRAEMER, Wilmington: In one case, in a man 46 years of age, in which cystoscopic together with microscopic examination showed tuberculous cystitis, I used tuberculin. The tuberculin injections were kept up for eight months, at the end of which time the symptom of pain in the bladder and frequency of urination had been greatly relieved.

DISCUSSION

DR. WILLIAM H. KRAEMER, Wilmington: The reason I have been so determined to have the normal temperature before giving tuberculin is that, as I understand it, the idea of giving tuberculin is to establish a reaction of the body against the infection, and, if the patient is throwing out of his own accord sufficient toxic substances to produce a high temperature in the body, I feel that giving him tuberculin would only add to the reaction and that it would not bring about any favorable results.

DR. G. I. MCKELWAY, Dover: Tuberculin does good in tuberculous gland infections. The reason is that they are simply tuberculous infections; they are not mixed infections. Tuberculin does no good in advanced cases of tuberculosis because the infection is a mixed infection. You have not only a tuberculous condition to deal with, but what it is fair to call abscess in the lung from pyogenic organisms on which tuberculin has no effect and on which nothing will have any practical effect. The secret of using tuberculin is to use too little rather than too much. The usual mistake is that men are impatient for results and think that if a little does good a little more will do better.

The Roentgen Ray as an Aid to the General Practitioner

DR. HENRY A. CLEAVER, Wilmington: The Roentgen ray is in no sense a panacea for disease either as to diagnosis or as to treatment. It is one of the most powerful aids, but requires specialized technic and training. It will never displace the clinical methods of examination. The diagnostic features are in the foreground and the element of treatment is much in the experimental stage. The future of the Roentgen ray lies largely in respect to treatment. For the patient there is always danger unless the man who is manipulating the machine knows it and knows it thoroughly. The man who has experience is the best judge when to stop. There is entirely too much promiscuous roentgenoscopy, especially with the apparatus which are designed to give impressions or results. The machines oscillate to two extremes which either will not do the work or else will burn the patient.

(To be continued)

AMERICAN ROENTGEN RAY SOCIETY

Fourteenth annual meeting, held in Boston, Oct. 1-4, 1913

The President, DR. HENRY K. PANCOAST, Philadelphia, in the Chair

Officers Elected

The following officers were elected for the ensuing year: President, Dr. Sidney Lange, Cincinnati; vice-presidents, Dr. D. D. Talley, Richmond, Va., and Albert Soiland, Los Angeles, Cal.; secretary, Dr. W. F. Manges, Philadelphia; treasurer, Dr. Leonard Reu, Buffalo; executive committee: Dr. Alfred L. Gray, Richmond, Va., chairman; Dr. George C. Johnston, Pittsburgh, and Dr. Roland Hammond, Providence, R. I.

The next annual meeting will be held in Cleveland, Ohio.

Adoption of a Standard Nomenclature for Roentgen Ray Work

On the recommendation of the Committee on Nomenclature, the society adopted the following terms for use in connection with all work in which the Roentgen ray is the agent employed:

Roentgen: To be pronounced rent-gĕn.

Roentgen ray: A ray discovered and described by Wilhelm Konrad Roentgen.

Roentgenology: The study and practice of the Roentgen ray as applied to medical science.

Roentgenologist: One skilled in roentgenology.

Roentgenogram: The shadow picture produced by the Roentgen ray on a sensitized plate or film.

Roentgenograph (verb): To make a roentgenogram.

Roentgenoscope: An apparatus for examination with the fluorescent screen excited by the Roentgen ray.

Roentgenoscopy: Examination by means of the roentgenoscope.

Roentgenography: The art of making roentgenograms.

Roentgenize: To apply the Roentgen ray.

Roentgenization: Application of the Roentgen ray.

Roentgenism: Untoward effect of the Roentgen ray.

Roentgen diagnosis; Roentgen therapy; Roentgen dermatitis: These terms are self-explanatory.

The secretary was instructed to send a list of these terms and definitions to medical journals, medical publishers and lexicographers.

Journal of the Society

The Publication Committee announced that hereafter the society would publish a monthly journal, to be known as the American Journal of Roentgenology, to contain not only original articles, but abstracts of current literature in English and foreign languages dealing with roentgenologic subjects. The editor is Dr. Preston M. Hickey, 32 Adams Avenue, West, Detroit, Michigan.

The Value of Roentgenography in the Prognosis of Bone Lesions

DR. ROLAND HAMMOND, Providence, R. I.: In bone tuberculosis, improvement is noted in the general condition of the patient before any change is apparent in the bone. This improvement is shown roentgenographically by the deposit of lime salts in the diseased area and in the adjacent bones. In unfavorable cases the bone undergoes a marked atrophy until its shadow is often hardly to be distinguished from the surrounding soft parts. In these two classes of cases the Roentgen examination confirms the clinical findings. There are other cases, however, in which roentgenography is an invaluable guide as to the future conduct of the case. The clinical symptoms may be unfavorable, but roentgenographic examination shows that the bone is not sufficiently healthy to permit of function in the joint. In one of the cases cited the patient's condition was excellent, and the employment of apparatus was about to be omitted. A roentgenogram was made as a precaution, and showed marked disease with no signs of healing. Soon after this the patient became worse and died in three months.

The Pituitary in Its Relation to Epilepsy

DR. G. C. JOHNSTON, Pittsburgh: I examined the pituitary region in every case of epilepsy obtainable, especially those in which no symptoms of pressure in the region of the pituitary (as evidenced by changes in the eye-grounds and visual fields) were present. I was very soon compelled to divide the cases into primary cerebropathies, pituitary tumors and epilepsy. In the majority of cases, little if any information was obtained by roentgenography of the first class, but there remained a second class of patients, who with an uneventful history, no injury, the ordinary children's diseases, previous good health, somewhere between the ages of 15 to 35, began to have attacks of petit mal, gradually increasing in severity and frequency.

As our investigations began to include this type of cases, we noticed decided departures from our conception of the normal in the topography of the sella turcica. These changes were but rarely found in the types of chronic epileptics, but were found with a regularity that gave rise to intense interest in the second class of cases above described, namely, those who with previous good histories, between the ages of 15 and 35, began to develop epilepsy. The changes consisted for the most part in an overgrowth of the anterior and posterior clinoidal processes, which in addition to an increase in area and length are slowly folded over and down on the pituitary gland, enclosing it within a bony basket. In addition to this process which is evidently one requiring a considerable length of time for its accomplishment, there is very often noticeable a decided difference in the size of the pituitary fossa and therefore of the gland itself. The fossa is thus largely or completely roofed over in some cases, the anterior and posterior clinoidal processes not only meet but overlap. The frequency with which this condition has been found in this class of cases is quite striking and suggests an etiologic relationship.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany Medical Annals

October, XXXIV, No. 10, pp. 573-636

1 Rôle of Insects in Transmission of Disease. C. K. Winne, Albany.
2 Some Aspects in Relation to the Chronic Gonorrheic, from Standpoint of Surgery and Eugenics. J. N. Vander Veer, Albany.

American Journal of Diseases of Children, Chicago

October, VI, No. 4, pp. 225-288

3 Cell Content of Milk. D. M. Lewis, New Haven, Conn.
4 *Anatomy and Physiology of Infant Stomach Based on Serial Roentgenograms. G. R. Pisek and L. T. LeWald, New York.
5 Urinary Lithiasis in Infancy. A. N. Collins, Duluth, Minn.
6 *Gastric Secretion of Infants at Birth. A. F. Hess, New York.

4. **Anatomy and Physiology of Infant Stomach.**—As a result of their investigations the authors conclude that there is no definite normal type of stomach in the infant. It is horizontal rather than vertical in position when compared with the adult type, and follows certain rather definite forms. They distinguish (1) the ovoid; (2) the tobacco pouch; (3) the pear-shaped stomach with base above and to the left. The shape of the stomach, it is said, does not even depend directly on the amount or character of the food ingested, but rather on the quantity of gas which it contains or acquires. Furthermore, its limits are greater than we were accustomed to believe, extending to the liver on the right and at times filling the entire transverse space from one abdominal wall to the other.

Of particular interest from the standpoint of diagnosis is the position of the pylorus. In the majority of cases this is found comparatively high and behind the pyloric third; at times its position cannot be determined even though we clearly see that the food and bismuth has passed out of the viscus.

This is especially true in the tobacco pouch form, in which the pylorus is forced posteriorly. The authors observed a change in form from the tobacco pouch to the bagpipe variety after the intestines have been emptied. The Rieder type was observed only once, occurring in a six-months-old infant. It appeared first as the bagpipe form, changed to a Rieder and then to a retort form.

The question of contained gas, or introduced gas, is an interesting one. In some cases the gas seems to act as a buffer, preventing the overdistention of the stomach with food. As a rule, the broader or more protuberant the abdomen of the infant, the greater the amount of gas the stomach contains. One of the most noteworthy observations made related to the rapid passage of food out of the pylorus; in a number of cases bismuth was seen in the duodenum one minute after the food had been introduced into the stomach by gavage, the average time being five minutes; in one case of the tobacco pouch, or retort form, the action was not unlike that of a siphon; after the greater part had passed through the pylorus the emptying action became slower. Except in the instances in which semisolid food (farina and bismuth) or cream were fed, the viscus tended to empty itself with unsuspected remarkable rapidity.

The authors question the advice of those who recommend placing all infants on four-hour feeding intervals, since a large number of stomachs practically empty themselves within an hour. In abnormal cases, as in infants having chronic disturbances of nutrition, the stomach began to empty itself very rapidly, and the emptying time was even shorter. Pisek and LeWald also attempted to corroborate the suggestive experiments of Cowie and Lyon on the pyloric opening and closing reflex. It was impossible to record or obtain roentgenograms of the action of the pylorus itself, because the pylorus and the first part of the duodenum are rarely visible, but the retarding action, for example, of alkalies, which they record, was well shown. They were able to verify the work of Cannon, Grutzer and Sick, that foods in the stomach do not tend to intermix.

6. **Gastric Secretion of Infants at Birth.**—According to Hess, newborn infants regularly secrete a considerable amount of hydrochloric acid before they are given any food. Among fifty-two infants varying in age from ½ hour to 18 hours, only one did not have hydrochloric acid in the stomach; in all but one instance free acid was obtained. The hydrochloric acid varies greatly in amount. Exceptionally it was found almost lacking on repeated tests (congenital hypochlorhydria or hyposecretion), or very profuse (congenital hyperchlorhydria or hypersecretion). In almost all cases acid was obtained by Hess throughout prolonged tests, in spite of the fact that food was not given to stimulate secretion. In one instance 17 c.c. of highly acid juice was aspirated in one hour and fifty minutes. Rennin, pepsin and lipase were also obtained in the (unfed) new-born. Hess claims that prevailing physiologic views cannot account for the gastric secretion immediately after birth. It is not the result of mechanical stimulation by means of the catheter, as the juice was obtained immediately on the introduction of the tube, without an intervening latent period. It may be prenatal in origin. Nor is it clear what stimulates the continued secretion which was obtained for hours. Experiments showed that the saliva is not the exciting agent; the effect of sucking could not be determined. Comparative tests of the same infants at birth and later, during the first week of life, showed that the stimulus to gastric secretion may be greater in the new-born infant which has not been fed. This chlorhydria of the new-born, Hess states, is not usually associated with increased tonicity of the pyloric sphincter, as the duodenal catheter can readily be passed through the pylorus. Even when 0.4 per cent. hydrochloric acid is instilled into the gastric cavity the catheter can be readily passed into the duodenum. However, the high acidity may at times be related to the pylorospasm or to duodenal ulcer met with in infancy.

Although gastric secretion is so marked in the newborn, duodenal and pancreatic secretion is very scanty. Nor can this secretion be readily stimulated by allowing hydrochloric acid to enter the duodenum. Evidently the mechanism of pancreatic secretion is not as easily activated in the newborn as in later infancy.

Archives of Internal Medicine, Chicago

October, XII, No. 4, pp. 357-484

7 *Atypical Typhoid Infection. W. T. Cummins and P. K. Brown, San Francisco.
8 *Absorption of Protein without Digestion. E. V. Van Alstyne, New York.
9 Cholesterol and Cholesterol-Ester Content of Blood in Xanthoma Tuberosum Multiplex. J. Rosenbloom, Pittsburgh.
10 Relation of Fatigue to Paralysis Localization in Plumbism. R. R. Mellon, Ann Arbor.
11 Reinspiration of Expired Air. T. R. Crowder, Chicago.
12 Functional Tests of Kidney in Uremia. N. B. Foster, New York.
13 *Blood-Pressure Studies in Tuberculosis at High Altitude: Report of Six Hundred Cases. L. S. Peters and E. S. Bullock, Silver City, N. M.
14 *"Auricular Flutter," with Report of Two Cases. F. T. Fulton, Providence, R. I.

7. **Typhoid Infection.**—The following represents a summary made by Cummins and Brown of cases illustrating atypical conditions and complications. Among 149 patients treated since September, 1909, there have been 11 deaths—7.3 per cent.; with meningitis, chronic nephritis and purulent appendicitis, each 1 case; intestinal hemorrhage, 2 cases; perforation and possibly embolism, each 3 cases. There were 3 paratyphoid cases. Relapses developed in 9 cases, of which one appeared as late as four weeks after leaving the hospital. The longest febrile period of relapse was thirty days and the shortest, nine days. One patient developed a second attack of typhoid fever after a six-year interval. The earliest intestinal hemorrhage occurred on the third day. Two cases were fatal and of 11 others, 4 were severe and 7 were mild. Pleurisy with effusion (organism?), meningitis and pneumonia *(B. typhosus)*, neuritis in leg, neuritis in shoulder, periostitis of tenth rib and perforating duodenal ulcer were each noted in one case. The ulcer patient was operated on on the twenty-ninth day, but the lesion was not determined as typhoidal. Two patients presented an initial appendicitis, the operation being followed by the development of typhoid fever. Another patient during the course of typhoid infection developed the symptoms of perforation; operation was performed and a ruptured appendix was disclosed. Phlebitis of the leg developed in 7 cases, and of these there were 4 in the second week, 2 in the fifth week and 1 in the third week after discharge. Thrombosis or embolism was suspected in the lungs in 4 cases and in the mesenteric veins in 3 cases. These occurred from the sixth to the thirty-fifth days, and were not severe, except in 2 cases of pulmonary embolism. One patient died promptly, and the other, occurring on the thirtieth day, resulted in gangrene from which the patient was convalescent on the one hundred and ninety-first day. Chills and fever were noted in 13 cases of which phlebitis of the leg was the etiologic factor in 3. Malaria may have been a factor in another case. Chills occurred during the first week in 4 cases, second week in 2 cases, third week in 4 cases, fourth week in 2 cases and sixth week in 1 case.

8. **Absorption of Protein Without Digestion.**—Van Alstyne's experiments demonstrate that protein may be absorbed unaltered through the intact epithelium of the gastro-intestinal tract. Conditions which interfere with normal digestive function, such as ligaturing a portion of the intestine, or the whole stomach, or the isolation of a portion of the intestine as a Thiry-Vella fistula, markedly increase the amount of protein absorbed. The amount of protein absorbed without digestion under physiological conditions is too small to be of any significance as a factor in nutrition. Edestin and egg albumin when injected intravenously into a dog do not remain in the circulation in a condition to sensitize guinea-pigs for a long period; in our experiment for three days. On the other hand, horse serum may be detected in the dog's circulation for a period of at least forty-nine days. The absorption in the duodenum differs from that in other portions of the intestine in that the ligation of the duodenum does not facilitate absorption of unaltered protein.

13. **Blood-Pressure in Tuberculosis at High Altitude.**—From a study of six hundred cases Peters and Bullock draw the following conclusions: The blood-pressure is increased at elevations of 6,000 feet. The blood-pressure of both normal individuals and consumptives is higher at 6,000 feet than at sea level. The pressure tends to increase up to certain limits with continued residence. From a prognostic standpoint the blood-pressure findings are of great value in tuberculosis. There is no relation between the degree of involvement and blood-pressure, but there is a constant relation between the degree of toxemia and blood-pressure.

14. **Auricular Flutter.**—A man of 48 suffering from progressive chronic nephritis with paroxysmal dyspnea and considerable edema, suddenly developed an irregular heart action after nearly three months in the hospital. This lasted for a month, when the rhythm suddenly became normal. There were no noticable symptoms with the onset or end of the attack but the edema was considerably more marked while the condition persisted. Cheyne-Stokes breathing was present at the time of the return to the normal rhythm. Digitalis in moderate doses of the tincture was being administered during most of the time of the irregularity. The tracings indicate that the irregularity was due to a very rapidly beating auricle, associated with irregular ventricular responses.

A man aged 54, with gradually increasing dyspnea and edema for a year, came under observation with chronic nephritis and an enlarged heart in stage of decompensation, and a pulse of 136 to 138 uninfluenced by posture or exercise. Auricular waves were present in the venous tracing at the rate of 272 per minute, indicating a 2:1 block. With rest in bed improvement was steady but the pulse was not slowed until after eight days of digitalis, when it became irregular, the latter being due to an increased grade of heart-block. Six weeks later the auricle was found to be in fibrillation.

The two cases reported by Fulton present certain points of similarity. Both patients were near the end of the fifth decade of life. In each case there was some arterial hypertension, some chronic disease of the kidneys, some cardiac hypertrophy with cardiac insufficiency associated with dyspnea and edema. In one instance the onset of the abnormal rhythm and the reestablishment of the normal rhythm occurred while the patient was under treatment in the hospital. Tracings were not taken immediately before the rhythm returned to normal, so whether it passed through the stage of fibrillation is uncertain. The duration of the abnormal rhythm was about a month. In the other case, the auricle was in flutter when the patient came under observation. It passed into fibrillation about six weeks later and has remained in that state.

Boston Medical and Surgical Journal

October 16, CLXIX, No. 16, pp. 557-591

15 *Relationship between Gynecologic and Neurologic Diseases. W. P. Graves, Boston.
16 Pellagra in Massachusetts. J. B. MacDonald, Hathorne, Mass.
17 *Surgery of Biliary Passages from Jan. 1, 1901, to Jan. 1, 1911, at Massachusetts General Hospital. W. Whittemore, Boston.
18 Pathologic Lesion of Whooping Cough. F. B. Mallory, Brookline, Mass.

15. **Gynecologic and Neurologic Diseases.**—Graves emphasizes that there exists no mysterious or peculiar nerve connection between the female genital organs and the central nervous system, and that disturbances in the former cause manifestations in the latter by the irritation of pain and discomfort.

17. **Surgery of Biliary Passages.**—Whittemore has traced 467 patients. Two hundred and sixty-two had a cholecystostomy performed for cholelithiasis; 139 have remained perfectly well; 56 have had a recurrence of symptoms; in twenty cases the symptoms have recurred once or twice and the patient has remained well since. Forty-seven are dead. Of these cases traced, 21 per cent. had recurrences. Fifty-nine had a cholecystostomy for cholecystitis; 29 have remained perfectly well; 16 have had recurrences. One patient, who is now well, had several recurrences, and 13 are dead, showing 27 per cent. of recurrences in the fifty-nine cases traced. Eighty-nine patients had a cholecystectomy for cholelithiasis; 63 have remained well, 5 have recurred, one recurred once or twice, is now well, and 20 are now dead. In the 89 cases traced, 5.6 per cent. show a recurrence. Twenty-five patients had a cholecystectomy for cholecystitis. Nineteen have remained well, in two the symptoms recurred, and four are now dead; 8 per cent. of recurrences in the twenty-five cases traced. Of 14 patients with cholecystostomy and choledochotomy, 9 have remained well, 2 recurred and 3 are dead. Seven had a cholecystectomy and choledochotomy. Two have remained well, 5 are dead. Five cases of choledochotomy traced, 2 remained well, 1 recurred, and 2 are dead. Two patients having a cholecystostomy and duodenotomy have been traced, 1 has remained well, 1 is now dead. One case has been traced that had a cholecystectomy and duodenotomy, and this patient is dead. Two patients that had a cholecystenterostomy have been traced; 1 has remained well, 1 died. Out of a total of 467 patients traced, having had these various operations, 246 have remained well, with no recurrences; 82 have recurred and are apparently no better following the operation. This shows a percentage of 17 per cent. of recurrences. Twenty-two patients have had one or two attacks of colic and have remained well since then; 97 are now dead.

Twenty-five patients having had a cholecystostomy for cholelithiasis at the first operation have had secondary operations. Eight had a cholecystostomy for cholelithiasis done. Of these eight, 1 has had a further recurrence of symptoms, 4 have remained well, 1 died at home and 2 have not been traced. One patient had a cholecystostomy for cholelithiasis and choledochotomy at the second operation. This patient died following the operation. Seven patients have had a cholecystectomy at the second operation; 3 have remained well, 1 died following the operation, 1 died at home, 2 have not been traced. Six patients had a choledochotomy at the second operation; 4 have remained well, the other two not traced. One patient had a choledochotomy and a duodenotomy; this patient died following the operation. Two patients had adhesions broken up at the second operation. Both these cases have had recurrence of symptoms. Ten patients having a cholecystostomy for cholecystitis at the first operation have had a second operation. Two of these had a cholecystostomy for cholelithiasis at the second operation. One has remained well, 1 was not traced. One patient had a cholecystostomy for cholecystitis and a choledochotomy at the second operation; this patient not traced. Two patients had a cholecystectomy at the second operation; 1 remained well, 1 died following the operation. One patient had a choledochotomy at the second operation, and this patient has remained well. Two patients had a cholecystenterostomy at the second operation. One died following the operation; the other was not traced. Two patients had adhesions broken up at the second operation; 1 died following the operation, 1 not traced. Only one patient returned for a second operation who had a cholecystectomy for stone, and no patient returned who had a cholecystectomy done for cholecystitis. The patient that returned for a second operation had a choledochotomy done and has remained well since.

At the present time 97 patients who were operated on are dead. Thirty-three have died at home since leaving the hospital and the other 64 died following the operation. Twenty of these died from peritonitis, 10 from hemorrhage, 12 from shock, 6 from pneumonia, 6 from septicemia, 3 from kidneys ceasing to functionate, and 2 from subdiaphragmatic abscess. In five cases Whittemore was unable to determine any cause for death from reading the records. Of the 33 that died at home, 8 died with further symptoms of disease of the bile passages, 1 from abscess of the liver, which was found at autopsy, and 1 from cancer of liver and gall-bladder, also found at autopsy. Two died with recurrence of the old symptoms, 4 died following a secondary operation which was performed outside the hospital. The others died from pneumonia, tuberculosis, apoplexy, nephritis and following childbirth, and in 10 cases Whittemore was unable to find out the cause of death.

Bulletin of American Academy of Medicine, Easton, Pa.

October, XIV, No. 5, pp. 329-382

19 Illumination from Standpoint of Medical Sociology. P. W. Cobb, Cleveland.
20 Present-Day Aims and Methods of Studying Offender. W. Healy, Chicago.
21 Physician in Service of Criminology. R. H. Gault, Evanston, Ill.
22 Influence of Parental Diseases, Habits and Heredity on Juvenile Crime. H. Sneve, St. Paul, Minn.

California State Journal of Medicine, San Francisco

October, XI, No. 10, pp. 387-430

23 Dermatologic Case Reports. H. E. Alderson, San Francisco.
24 Effect of Competitive Athletics on Scholarship. H. D. Power, San Francisco.
25 Sclero-Corneal Trephining for Glaucoma. K. Pischel, San Francisco.
26 Use of Serums in Medical Hemorrhage. F. F. Gundrum, Sacramento.
27 Treatment of Urinary Tuberculosis, Tuberculin and Nephrectomy. Legueu and Chevassu.
28 Four Cases of Varying Types of Anemia. E. H. Crabtree, San Diego.
29 Social Evil. Petersen, Oakland.
30 Case of Hydrophobia in Which Child Bit Her Father. R. E. Allen and F. L. Horne, Newcastle.
31 Hema-Uro-Chrome—New Laboratory Test for Cancer and Sarcoma; from Urine. P. G. Davis, Los Angeles.
32 Physicians' Aspect of Sunday Closing of Pharmacies. A. S. Musante, San Francisco.
33 Atrophy of Prostate with Citation of Cases. H. Somers, San Francisco.
34 Undescended Testicle: Report of Two Cases. R. L. Rigdon, San Francisco.
35 *Intensive Strychnin Treatment of Trifacial Neuralgia. T. J. Orbison, Los Angeles.
36 Pellagra. A. Davidson, Los Angeles.
37 Traumatic Hysteria. J. T. Fisher, Los Angeles.

35. **Intensive Strychnin in Trifacial Neuralgia.**—Orbison's paper contains the clinical records of five cases of trifacial neuralgia (one case being multiple neuritis plus trifacial neuralgia), in which the treatment consisted of strychnin exhibited in large or massive doses. All of these cases contain a record of infection. This seems to Orbison to be the important indication for the exhibition of strychnin. In contrast to these, and for the purpose of calling attention to the fact that strychnin is not held to be a specific in every painful condition of trifacial distribution, Orbison cites five cases as examples of other and separate types of trifacial nerve pain in which rational therapeutics seemed to indicate different and differing methods of treatment, and in which the results have been likewise happy. Of the latter five, one was of hyperemic headache secondary to ovarian dyscrasia and cured by appropriate surgical measures and organotherapy; the second was a typical indurative headache that was speedily cured by the application of correct massage and moist heat to the indurations, together with internal administration of salophen and the iodids; the third was a combination of migrain with psychasthenia that was cured by the "training camp" method; the fourth, an incipient arteriosclerosis and fatigue neurosis, in which rest, hydrotherapy and thyroid extract were the curative measures; the fifth is a typical migrain associated with an unsuspected syphilis in which salvarsan is being exhibited because the presence of syphilis was demonstrated by a positive Wassermann of the spinal fluid. This case is still under observation. The strychnin treatment was given by mouth or hypodermically in 1/40 to 1/30 grain doses hourly for four hours morning and evening.

Cleveland Medical Journal

September, XII, No. 9, pp. 581-646

38 Typhoid in Cleveland in 1912. W. P. Ellis and R. G. Perkins, Cleveland.
39 Value of Roentgenograms in Diagnosis of Mastoiditis. J. M. Ingersoll, Cleveland.
40 *Causes of Continued Fever in Children. J. Phillips, Cleveland.
41 Treatment of Recurrent Malignant Tumors of Urinary Bladder with High Frequency or Oudin Current: Report of Case. W. E. Lower, Cleveland.
42 Cell Count in Spinal Fluid in Syphilitic Disease of Central Nervous System. O. P. Bigelow, Cleveland.

40. **Causes of Continued Fever in Children.**—The most common causes of continued fever in childhood are classified by Phillips as follows: 1. General infectious diseases such as typhoid, malaria, tuberculosis, influenza, septicemia syphilis. 2. Infections of the nose with its accessory sinuses, the ear and tonsils. This would include nasopharyngitis, infections of the antrum of Highmore, the ethmoidal and sphenoidal and frontal sinuses, otitis media with or without mastoiditis, and chronic tonsillitis. 3. Oral infections, particularly pyorrhea alveolaris. 4. Glandular inflammations, such as cervical adenitis or inflammatory conditions of the mediastinum and retroperitoneal glands, tuberculous peritonitis. 5. Diseases of the lungs and pleura, especially empyema bronchiectasis and abscess of the lung. 6. Chronic endocarditis and pericarditis with effusion. 7. Chronic appendicitis, constipation, colitis, starvation. 8. Infections of the urinary tract and vagina, pyelitis, nephritis, cystitis, gonorrheal vaginitis. 9. Diseases of the bones and joints. 10. Anemic conditions—pernicious anemia, Hodgkins' disease, leukemia, infantile scurvy. 11. Heat congestion due to insufficient radiation as seen in premature infants. 12. Chronic diseases of the brain and meninges—brain abscess, meningitis.

Georgia Medical Association Journal, Augusta

October, III, No. 6, pp. 181-214

43 Raynaud's Disease: Three Cases in Colored Race. L. Lee, Savannah.
44 Most Prevalent Intestinal Parasites Found in Georgia. A. G. Fort, Atlanta.
45 *Treatment of Lobar Pneumonia. J. W. Palmer, Alley.
46 Syphilis from Standpoint of Physician. C. Swanson, Atlanta.

45. Abstracted in THE JOURNAL, May 31, 1731.

Illinois Medical Journal, Chicago

October, XXIV, No. 4, pp. 201-260

47 *Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis: Report of Twelve Cases. E. A. Gray, Chicago.
48 Diagnosis of Incipient Phthisis—Points Demanding Emphasis. B. G. R. Williams, Paris, Ill.
49 Early Identification of Pulmonary Tuberculosis. S. M. Miller, Peoria.
50 Tuberculosis of Kidney. R. E. Barrows, Cairo.
51 *Antityphoid Vaccination. G. V. Rukke, St. Louis.
52 Degeneration Common to Alcoholism and Inebriety. T. D. Crothers, Hartford, Conn.

47. **Artificial Pneumothorax in Lung Tuberculosis.**—Gray is of the opinion that artificial pneumothorax offers much in selected cases and that no progressive case should be given up without at least considering this operation. He thinks it is better to sacrifice a partially destroyed lung than to await its almost certain destruction, because it is possible to save a fair percentage of otherwise hopeless cases.

51. **Antityphoid Vaccination.**—At Jefferson Barracks, a recruit depot, Rukke says they have completed 11,007 cases of prophylactic administrations of typhoid vaccine. This means 33,021 injections. Of these cases, eighty-seven were admitted to hospital as having a reaction sufficiently severe to excuse them from work. As all recruits are vaccinated for small-pox at the time of enlistment, a large number of the admissions were suffering both from vaccinia and typhoid prophylactic. Again, as prevention of epidemics is an important part of the work, infectious diseases are imported continuously. A great number of these eighty-seven admissions were admitted on account of the temperature rise on suspicion of measles and other infectious diseases. Rukke believes it to be a conservative estimate that 50 per cent. of the admissions which were diagnosed as reaction following typhoid, would not have been admitted if the patient had not had vaccinia, or had not been taken in on account of the suspicion of measles or other infectious disease.

Rukke and his colleagues have seen no serious result in any of the 33,021 doses, and so far he has heard of only one, a case of neuritis in an officer, probably due to accidentally striking a nerve with the needle. Occasionally a man the day after the prophylactic becomes weak and faint while at drill and has to fall out, but usually in a few hours is able to go on with his work, not necessitating admission to hospital, or any treatment. Children bear the prophylactic well. They have administered it to children as young as 3 years. They encourage all families on the post to have their children protected, and, to a great extent, they avail themselves of the opportunity. Children do not react so severely as adults. Usually the child is cautioned not to go out in the sun, otherwise it continues its play as if nothing had happened. The dose for a child is in proportion to its weight, the basis being a man of 150 pounds. Better a little more than less the exact proportion. As the child is immunized in proportion to its

weight, and its weight increases rapidly, it is advisable to repeat the immunization oftener than in adults. The immunization appears to last at least two years, probably more.

Iowa State Medical Society Journal, Clinton

October, III, No. 4, pp. 221-278

53 Recent Advance in Knowledge of Pathology and Physiology of Ductless Glands. J. Sailer, Philadelphia.
54 Visceral Syphilis. W. L. Bierring, Des Moines.
55 Significance of Symptoms of Ametropia. H. B. Gratiot, Dubuque.

Journal of Cutaneous Diseases, New York

October, XXXI, No. 10, pp. 697-798

56 *Research Studies in Psoriasis: Preliminary Report. J. F. Schamberg, J. A. Kolmer, A. I. Ringer and G. W. Raiziss, Philadelphia.
57 Angioma Serpignosum (Infective Angioma of Hutchinson), with Report of Very Extensive Case. F. Wise, New York.
58 Leukocytes in Syphilis. H. H. Hazen, Washington, D. C.

56. **Research Studies in Psoriasis.**—Nine of forty-eight cases of psoriasis, 18.7 per cent. studied by the authors, yielded positive Wassermann reactions, using an alcoholic extract of luetic liver as antigen. With antigens of cholesterinized alcoholic extracts of human and beef heart, over 28 per cent. of twenty-two cases reacted positively. From a clinical study of the patients whose serums were studied, the positive tests cannot all be attributed to syphilis, although this might be true of a few of them; on the other hand, some significance must be attached to them, which future research alone can reveal. Using for antigens aqueous and alcoholic extracts of psoriasis scales and of a large number of cultures of organisms isolated from lesions, complement fixation was not found to occur with ten serums from active cases of psoriasis. These result would indicate that either the true antigen was not present in the extracts of scales and cultures used, or that the psoriasis antibody, if it exists, was not present in the serums in sufficient amount to inactivate complement with the extracts used in this study. Sixteen different organisms were isolated from fifty-seven cultures from twenty-four cases of psoriasis. No organism was found which could be regarded as bearing an etiologic relationship to the disease.

An unidentified diplococcus "X" was found in five psoriatic lesions and in one blood-culture and is deserving of further study. The use of anaerobic methods and special culture media, composed of the scales and secretions of psoriasis, did not show the presence of any special parasite. Numerous growths of scales in moist chambers showed the presence of diplococci, but no unusual organism or fungus. Investigation with the ultramicroscope discovered the presence of a motile bacillary body in seventeen out of nineteen cases of psoriasis. In eighteen other dermatoses these were found in three instances. These bodies are being further studied. Cultures and microscopic examinations of fluid secured by blister over psoriasis lesions, yielded indifferent and inconclusive results. Inoculation experiments on monkeys, including the implantation of buttons of psoriasis skin, scales, serum and defibrinated blood, were negative in one to six months after inoculation.

Kentucky Medical Journal, Bowling Green

October 1, XI, No. 20, pp. 813-888

59 Progress of State Medicine during Past and Recent Years. W. O. Roberts, Louisville.
60 Prevention in Medicine. O. West, Nashville, Tenn.
61 Conservation of Our Greatest Natural Resource. T. A. Frazer, Marion.
62 Achievements of Surgery. W. E. Senour, Bellevue.

Medical Record, New York

October, LXXXIV, No. 16, pp. 691-736

63 *Cure Through Genito-Urinary Surgery of Arthritis Deformans and Allied Varieties of Chronic Rheumatism. E. Fuller, New York.
64 Scope of Roentgenographic Methods, from Clinical Viewpoint, with Some Illustrative Cases. L. A. Wing, New York.
65 Syringomyelia; with Pathologic Findings. E. P. Bernstein and S. Horwitt, New York.
66 *Hitherto Undescribed Form of Polycythemia and Its Possible Relation to Duodenal Ulcer, Chronic Pancreatitis and Disturbance of Internal Secretions (Epinephrin). G. A. Friedman, New York.
67 Medical School Inspection and General Practitioner. M. M. Vinton, Brightwaters, N. Y.
68 Wassermann Reaction among Negro Insane of Alabama. R. R. Ivey, Tuscaloosa, Ala.

63. **Cure of Arthritis Deformans.**—On the basis that the presence of a septic focus in the seminal vesicles produces an arthritis, Fuller has performed seminal vesiculotomy 346 times with good results. Whereas in acute cases a cure of rheumatic complications following operation is rapid, it is natural in connection with chronic ones that the end result should be slower. In both phases of the disease, the operation, by draining the septic focus, puts an end to systemic toxemia. In the chronic cases, the toxemia may produce certain secondary lesions or results, which remain after the sepsis has disappeared, and it is not until these secondary lesions have vanished that a cure is usually reckoned. In Fuller's first series of thirty-five cases results were not as uniformly good as those attending later operations, for the reason that septic foci in these early cases were not treated surgically as radically as in the later operations. This was observed chiefly in connection with chronic cases which call especially for radical surgery.

66. **Polycythemia and Possible Relation to Duodenal Ulcer, Etc.**—The material studied by Friedman consists of twenty-five patients, twenty-three males and two females. The ages ranged from 19 to 57 years. All of the patients complained of the usual symptoms of chronic indigestion and of attacks of pain. The paroxysmal pain dated back mostly for years, and in a large number constant pain was also complained of. Many complained of night pain; some of hunger pain, others of both. A large number of them were users of bicarbonate of soda, which remedy they took at night on account of pain or on retiring in order to avoid night pain. Jaundice could not be elicited from a single history. Objectively there could be demonstrated in all the cases tenderness of different intensity to right of the epigastrium, in the continuation of right parasternal line somewhat above the navel; in but a few instances tenderness was found also somewhat to left of navel, and in one patient there was also tenderness in the appendicular region. In none of the patients was either liver border palpable, or spleen enlarged, or gall-bladder palpable. There were no tender spots characteristic for gallstone disease or for gastric ulcer. Hyperacidity was noted in all, except for one case of hypoacidity and for another of heterochylia. The presence of occult blood could be demonstrated with the guaiac test only in a small number of cases, though with benzidin more frequently. A complete analysis of the feces of three patients showed pancreatic insufficiency. One of these cases came to autopsy and was proved to be chronic interstitial pancreatis. Urine was negative, except for a large sediment of phosphates in some and transient glycosuria in two.

Modern Hospital, St. Louis

October, I, No. 2, pp. 69-142

69 New Johns Hopkins Feature Intended for Treatment and Scientific Study of Obscure Mental Cases—Methods to be Employed. A. Meyer, Baltimore.
70 Disinfection as Part of Hospital Administration. D. L. Richardson, Providence, R. I.
71 Some Special Features of Barnes Hospital, St. Louis. F. T. Murphy, St. Louis.
72 Great Need of American Hospitals—More Autopsies. T. C. Janeway, New York.
73 Boston New Children's Hospital Has Novel Features.
74 Is Pavilion or Sky-Scraper Hospital Best? S. W. Lambert, New York.
75 Proposed Inspection and Standardization of Hospitals. J. A. Hornsby, Chicago.
76 Out-Patient Workshops—New Hospital Department. H. J. Hall, Marblehead, Mass.
77 Poetry and Prose in Hospital. J. W. Fowler, Louisville, Ky.

New York Medical Journal

October 18, XCVIII, No. 16, pp. 745-796

78 Clinical Forms Presented by Nervous Syphilis. F. X. Dercum, Philadelphia.
79 Seven Cases of Syphilis Apparently Cured with One Injection of Salvarsan. A. L. Wolbarst, New York.
80 New and Improved Duodenal Instruments and Technic of Speedy Intubation of Normal Duodenum. I. O. Palefski, New York.
81 *Teeth and Their Relation to Eye. A. M. MacWhinnie, Seattle, Wash.
82 Pyelitis in Adult. C. J. Bartlett, New Haven, Conn.
83 Mentally Defective Immigrant. B. Glueck, Ellis Island, N. Y.
84 General Paralysis in Negro. F. M. Barnes, St. Louis.

85 Case of Retropharyngeal Abscess in Adult. C. M. Mann, New York.
86 New Method of Diagnosticating Masturbation in Girls. B. Kaufman, Marysville, Cal.

81. **Relation of Teeth and Eyes.**—MacWhinnie cites two cases to show that there is a very intimate relation between the teeth and the eyes. He insists that roentgenoscopy be made in all obscure eye troubles. In one case an abscess at the root of the left cuspid caused a very annoying eye trouble. In the second case there was an abscess at the root of the first molar which caused the visual disturbance.

New York State Journal of Medicine, New York

October, XIII, No. 10, pp. 511-560

87 Cancer of Uterus—Importance of Early Diagnosis. L. Broun, New York.
88 Etiology and Morbid Anatomy of Duodenal Ulcer. M. Clinton, Buffalo.
89 Diagnosis and Prognosis of Duodenal Ulcer. J. T. Pilcher, Brooklyn.
90 Complications of Duodenal Ulcer. J. B. Harvie, Troy.
91 Medical Treatment of Duodenal Ulcer. C. G. Stockton, Buffalo.
92 Stigmata of Decadence in Gynecology. R. T. Morris, New York.
93 Possible Errors in Diagnosis of Abdominal Cancer—Plea for Exploratory Laparotomy—Illustrative Cases. W. S. Bainbridge, New York.
94 Contraction Ring Dystocia. P. T. Harper, Albany.
95 Case of Near Death after Intravenous Injection of Salvarsan. V. C. Pedersen, New York.
96 Infant Feeding with Undiluted Cow's Milk. W. B. Hanbidge, Ogdensburg.
97 Abscess of Lung—Case Study. F. B. Cross and H. F. Graham, Brooklyn.
98 Loose Sacro-Iliac Synchrondrosis and Its Treatment. C. C. Zacharie, White Plains.
99 Future of Trained Nursing in Surgery. M. B. Tinker, Ithaca.
100 Tuberculin Treatment. E. R. Baldwin, Saranac Lake.
101 Blood Platelets. J. W. W. Dimon, Utica.

Quarterly of Federation of State Medical Boards of United States, Easton, Pa.

October, I, No. 1, pp. 1-95

102 Preparation for the Professions. H. S. Pritchett, New York.
103 Homeopath's Viewpoint of Medical Education. R. S. Copeland, New York.
104 Chief Needs and Functions of Federation of State Medical Boards. N. P. Colwell, Chicago.
105 Address to State Boards. W. A. Spurgeon, Muncie, Ind.
106 Uniform State Laws—A Necessity. C. T. Terry, New York.
107 Rules and Regulations Governing Examinations. J. M. Baldy, Philadelphia.
108 Discipline of Character in Medical Education. E. A. Philbin, New York.
109 Universal Reciprocity. B. D. Harison, Detroit, Mich.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

October, X, No. 118, pp. 433-480

1 *Two Cases of Chyliform Effusion. H. A. Lediard.
2 Four Cases of Relapsing Pneumonia in Young Children. R. R. Armstrong.
3 Case of Cutaneous Diphtheria. W. B. Jack.

1. **Chyliform Effusion.**—The first case cited by Lediard was one of chyliform ascites (tuberculous). The patient was 18 years of age. When aged 5½ an attack of abdominal pain first came on, resembling peritonitis, followed a month later by a second attack with similar symptoms, and recovery was associated with emaciation. At the age of 7 there was a slight threatening of the old abdominal pain. For the next eight years the boy was of delicate health. When Lediard first saw him the swollen abdomen contrasted markedly with a thin, pale face and limbs destitute of fat and poor in muscle. The face was expressive of prolonged physical depression rather than of pain, the disposition was quiet, the habits studious and the appetite capricious. The costal margin was much displaced by prolonged pressure from below, the abdomen was moderately tense and had a fluctuant wave all over. The anterior abdominal wall showed distended veins, and when he coughed fluid passed down the left inguinal canal into the scrotum. The enlargement of the abdomen had been remarked six years before Lediard saw him. Dulness on percussion was found for a limited area above the umbilicus; elsewhere bowel seemed to float above the fluid. Temperature was 101 F. There was no vomiting or cough, but diarrhea was a prominent symptom. The urine was free from albumin and sugar; bile-pigment was present in small amount, but no jaundice of the skin was noted.

From the history and from the physical examination a diagnosis of tuberculous peritonitis was arrived at and drainage of the abdomen recommended. Four days later visible pulsation of the heart was seen in the second and third interspaces, the liver was displaced upward, and the patient complained of the tightness of his clothes. On account of the rapid respiration and cardiac displacement, an incision was made above the umbilicus, with the result of striking a milk-white fluid at once. Six pints were removed and a drainage-tube inserted, but the abdomen was not explored. After the tapping fluid was not felt again in the scrotum, proving that the fluid was free in the peritoneal cavity. Abdominal drainage was instituted and death ensued three weeks later.

The necropsy showed that tuberculous disease was widely distributed throughout the body. The peritoneum, omentum, mesenteric lymph-nodes, liver, spleen, kidneys, lungs and brain all showed, either with the naked eye or with the microscope, a deposit of tubercle. As regards the lymphatic system in the abdomen, the receptaculum was apparently obliterated in a mass of glands and fibrous tissue, and the different lymphatics showed a very marked distention. Obliteration of the receptaculum and evidence of dilatation of the lymph-vessels behind the obstruction were the main features in the pathology, the morbid material was tubercle, and the method of chyliform ascites was by transudation. No perforation was found. Death was due to tuberculous infection of the membranes of the brain, after a long period, during which the disease was limited to the abdomen. The second case was one of chyliform ascites associated with Hodgkin's disease.

British Medical Journal, London

October 4, II, No. 2753, pp. 837-896

4 Medical Needs of India. C. P. Lukis.
5 Problems of University Medical Education in London. W. Hunter.
6 Provincial School of Medicine and Provincial University. C. S. Sherrington.
7 *Two Unusual Cases of Liver Abscess. H. D. Rolleston.
8 Splenomegaly. E. S. Stevenson.
9 Two Hundred Cases of Ringworm Treated by Roentgen Rays. F. Emrys-Jones.
10 *Bedbugs and Leprosy. D. Thomson.
11 Non-Diabetic Glycosuria. A. E. Garrod.
12 Fibrositis and Muscular Rheumatism. A. P. Luff.
13 *Differentiation of Rheumatoid Arthritis. P. King.
14 Heart as Affected by Stomach. W. Broadbent.
15 *Arterial Pressure in Thoracic Aneurysms. M. Mackinnon.

7. **Liver Abscess.**—In one case cited by Rolleston intrahepatic suppuration was evidently due to infection, conveyed by means of exploratory puncture, from a right-sided empyema. An exploring needle was inserted in the sixth intercostal space in the axillary line and in the eighth intercostal space in the line of the inferior angle of the scapula, but no fluid was withdrawn from these two punctures. Next day the trocar of an aspirator was inserted into the eighth space in the line of the inferior angle of the scapula, and in the sixth space in the posterior axillary line, but only a small quantity of blood and serum was withdrawn. From the fifth space in the anterior axillary line about 1 oz. of thick pus was aspirated with difficulty; it contained a Gram-positive coccus. At 8 p. m. 1 inch of the eighth rib was resected below the inferior angle of the right scapula and the pleura opened and solid lung was found; the wound was plugged. One inch of the sixth rib in the anterior axillary line was then resected, and about a pint of creamy, odorless pus was evacuated from the fissure between the upper and middle lobes. After this the temperature continued to oscillate between 103 and 97 F.; the pulse varied between 140 and 100, and the respirations between 44 and 24. It was obvious that there was retained pus although the discharge was free, but the patient's condition rendered further operative interference undesirable.

Death occurred from sudden collapse. A necropsy was performed. The right pleural cavity contained two distinct abscess cavities of which one had been drained and the other had not been opened. The liver, which weighed 4 pounds 12 ounces, was enlarged and was adherent to the diaphragm. Over the anterior and diaphragmatic surface of the right lobe there was an area the size of the palm of the hand projecting from the surrounding liver tissue. It was obviously an area of suppuration and showed a small puncture on a level with the fifth rib. Section revealed a large multilocular abscess, several of the loculi near the puncture being full of blood-clot. The puncture opened directly into a space containing blood-clot and pus. The second case was one of small latent solitary hepatic abscess in an infant.

10. **Bedbugs and Leprosy.**—A total of 105 bedbugs fed on lepers and thirty-five caught in the beds of lepers and examined by Thomson for leprosy bacillus gave no evidence that these insects harbor or transmit the disease. A further total of 107 bedbugs were examined as controls; twenty-five of these were caught in dwellings in Liverpool; the remainder were caught in the Spanish wards in Ancon Hospital in Panama. The controls also gave negative results. The Ziehl-Neilsen stain was used throughout. Full details of this investigation will be published later.

13. **Differentiation of Rheumatoid Arthritis.**—Though King admits that osteo-arthritis and rheumatoid arthritis may be due to infection, he says it is usually easier to trace this infection and certainly easier and more hopeful to treat it by vaccine in the latter than in the former. Among sources of infection pyorrhea alveolaris and gonorrhea are the most common. Auto-intoxication from toxins of the alimentary canal is also a potent cause. With regard to the affection of the temporomaxillary joints, King says it is an interesting point to notice that while it is frequently seen in rheumatoid arthritis, and almost always in the infective cases, and associated with spondylitis deformans, it is seldom seen in osteo-arthritis, in which spondylitis deformans alone is often met with. He suggests that osteo-arthritis should be differentiated from rheumatoid arthritis; that neither of these conditions should be considered a distinct disease, and seeing that either of them may be due to an infective process, it might be well to form a third group and speak of it merely as an infective arthritis.

15. **Arterial Pressure in Thoracic Aneurysms.**—From the result of treatment of forty patients Mackinnon is convinced that potassium iodid does not reduce the blood-pressure in aneurysm, although it relieves pain in many cases. Relief of pain can also be induced by other means, notably by the injection of sterilized solution of gelatin, a method of treatment first introduced by Lancereaux in 1904. Dr. Rankin, of the Seamen's Hospital, used this method in many cases, and Mackinnon had the privilege of examining the blood-pressure in these cases while undergoing treatment. In no single instance, however, had the gelatin any effect in reducing the blood-pressure, but there was very marked relief of pain in almost every instance where such symptom was a prominent feature at the commencement of the treatment. Mackinnon found that the blood-pressure in aneurysm is usually about normal. In about 65 per cent. of cases there is a difference in the pressure in both arms. In 30 per cent. of cases this difference is very marked and is a valuable aid to diagnosis. Reduction of the blood-pressure is a great relief to the patient and helps toward the cure. The lower the pressure, providing the pulse is regular and of normal rate, the better the prognosis.

Indian Journal of Medical Research, Calcutta

July, I, No. 1, pp. 1-211

16 Certain Hematophagous Species of Genus Musca, with Descriptions of Two New Species. W. S. Patton and F. W. Cragg.
17 New Species of Philematomyia, with Some Remarks on Genus. W. S. Patton and F. W. Cragg.
18 Natural Host of Phlebotomus Minutus. F. M. Howlett.
19 Insect Life-Histories and Parasitism. F. M. Howlett.
20 Investigation of Cholera Vibrio in Biliary Passages. E. D. W. Greig.
21 Investigation of Epidemic of Cholera Caused by "Carrier." E. D. W. Greig.
22 Investigation of Cholera Convalescents and Contacts in India. E. D. W. Greig.
23 Cholera Bacillus in Urine of Patients with Cholera. E. D. W. Greig.
24 Present Knowledge of Dysentery. J. Cunningham.
25* Hemolytic Action of Quinin and Its Salts, with Suggestions Regarding Etiology and Treatment of Blackwater Fever. A. C. MacGilchrist.
26 Diagnosis of Latent Malaria. H. W. Acton and R. Knowles.
27 Kala Azar, Its Distribution and Probable Modes of Infection. C. Donovan.
28 Is Kala Azar in Madras of Animal Origin? W. S. Patton.
29 Specific Gravity of Blood. H. W. Acton and R. Knowles.
30 Revised List of Malayan Anophelines. C. Strickland.
31 Kurloff Bodies. R. Knowles and H. W. Acton.

Journal of Laryngology, Rhinology and Otology, London

October, XXVIII, No. 10, pp. 509-564

32 Two Cases of Subglottic Tumor. R. H. Woods.
33 Nasal Thermometry: Method of Determining Influence of Nose on Temperature of Inspired Air. A. B. Kelly.
34 What Becomes of Sinuses That Have Been Operated On? E. J. Moure.

Journal of Obstetrics and Gynecology of British Empire, London

August, XXXIV, No. 2, pp. 61-132

35 Two Cases of Uterine Fibroid in Which Degeneration in Tumor—Perithelioma and Necrobiosis—Caused Difficulty in Diagnosis. A. H. F. Barbour.
36 *Four Cases of Inversion of Uterus. J. N. Stark.
37 Intra-Abdominal Pressure in Pregnancy. (To be continued.) R. H. Paramore.
38 *Glycogen Content of Mucous Membrane of Fallopian Tube. V. J. McAllister.

36. **Inversion of Uterus.**—The only treatment of chronic pathologic inversion worthy of consideration, according to Stark, is the removal of any tumor present and either hysterotomy or hysterectomy. Hysterotomy is the operation of selection when the patient is a young parous woman. It is contra-indicated and hysterectomy must be performed (1) if a malignant tumor is present; (2) if there is either thickening and hardening of the uterine wall or softening and atrophy of the musculature, and (3) if there are dense peritoneal adhesions binding down the uterus or fixing bladder or rectum. And finally, Stark concludes, if hysterectomy is decided on, the abdominal rather than the vaginal route ought to be selected for the performance of the operation.

38. **Glycogen in Tubal Mucosa.**—The material examined by McAllister comprised the fallopian tubes from twenty-nine gynecologic and obstetric cases of different kinds. The operations were for uterine rupture, fibromyoma, carcinoma ovarii, pregnancy complicated by fibroids, salpingitis, metritis, carcinoma of cervix, tubal pregnancy, pregnancy in a case of phthisis and ovarian cyst. McAllister found glycogen present in the epithelial cells of the mucous membrane of seven of the tubes examined. The first tube in which it was found was from a patient with metritis. The next case in which the tube mucous membrane was found to contain glycogen in large amount was one of extensive uterine fibromyoma complicating a five months' intra-uterine pregnancy. The glycogen appeared in the form of minute granules in the protoplasm of the epithelial cells and also on their free border lying in the tube lumen. In a case of carcinoma of the portio vaginalis uteri the endometrium was glycogen-free, the patient having ceased to menstruate a week previous to operation. The tube mucous membrane and the muscle fibers close to the lumen of the tube, as well as the lumen itself, showed its presence in considerable quantity. The cancer cells contained glycogen here and there in the form of minute grains.

In a case of uterine rupture at full term the mucous membrane and the muscular tissue close to the lumen of the isthmial portion of the tubes contained glycogen in considerable amount. The corpus luteum was glycogen-free. In a case of hysterectomy for fibromyoma the glands of the endometrium were packed with glycogen, while the tubes were glycogen-free. In a case of early tubal gestation, in which the plicae in the tube contained numbers of decidua cells, only a few of the latter showed mere traces of glycogen. Neither muscle fibers nor mucous membrane showed glycogen. In a case of uterine rupture at full term decidua cells found in one of the tubes (isthmus) contained

mere traces of glycogen; the muscle fibers showed a good deal, while the epithelial cells of the mucous membrane were nearly glycogen-free. The isthmial tubes belonging to a two months' pregnant uterus showed no trace of glycogen. In an early case of salpingitis operated on a week after cessation of previous menstruation there was no glycogen in the tube except in the polymorphonuclear leukocytes.

In a case of carcinoma colli the endometrium contained some glands which showed considerable glycogen content, as also did the superficial epithelial cells. The majority of the glands were glycogen-free and so was the tube. In a case of hysterectomy for fibromyoma ten days after the cessation of the preceding menstruation the entire tube was glycogen-free. In a case of early isthmial tubal pregnancy with rupture, the ampulla epithelium contained much glycogen. The actual site of the pregnancy was not examined. The muscle fibers were also rich in glycogen. In a case of salpingitis with extensive infiltration of the plicae and presence of many plasma cells, operated on four weeks after previous menstruation, there was no glycogen present except in the polymorphonuclear leukocytes. In a case of tubal abortion and hematocele operated on two months after last menstruation the tube was glycogen-free. In a case of hysterectomy for myoma about three weeks after cessation of previous menstruation, the endometrium was typically premenstrual and the glands very rich in glycogen. The tube mucous membrane contained no glycogen, the muscle fibers a little.

In a case of salpingitis with intense infiltration, glycogen was absent, except in the leukocytes, where it was plentiful.

In carrying out this investigation McAllister had two chief aims in view, the first being to discover whether the mucous membrane of the tube ever contained glycogen and the second to discover whether, in the case of a positive finding regarding the presence of glycogen, the glycogen content was subject to a cyclic variation in relation to menstruation, as is the case with the endometrium. The first question he answers definitely in the affirmative, as in seven of the tubes examined glycogen was present in considerable amount in the cells of the mucous membrane. The investigation further shows that pregnancy is not essential to the presence of the glycogen. The second question requires further investigation but the results cause McAllister to state that undoubtedly the glycogen content of the mucous membrane of the tube undergoes considerable variations, and that, at a time when the endometrium presents all the signs of secretory activity and the epithelial cells of its glands are loaded with glycogen, the mucous membrane of the tube can be glycogen-free, and, vice versa, when the endometrium is free from the glycogen, the tube mucous membrane may contain it in considerable amount.

Lancet, London

October 4, II, No. 4701, pp. 977-1040

39 Medical Needs of India. C. P. Lukis.
40 Medicine as Liberal Education. W. S. Handley.
41 Work of Medical Profession in India. J. P. Hewett.
42 *Two Cases of Auricular Flutter. J. Hay.
43 Hemiplegia Following Syphilis. M. Mackinnon.
44 Syphilis: Its Dangers to Community and Question of State Control. H. C. French.
45 Foreign Bodies in Air Passages. W. G. Howarth.
46 Acute Epididymo-Orchitis due to Bacillus Coli. W. P. Bonner.
47 Neuroma-Myoma of Mesentery. P. Paterson.
48 Retraction Ring as Cause of Obstruction in Labor. R. Jardine.
49 Tuberculosis of Uterus. J. W. Thomson.

42. **Auricular Flutter.**—A man aged 62 came under Hay's observation with a large heart and peculiar arrhythmia. For ten years the heart had been known to be increased in size and occasionally irregular in its action. The auricular rate was 300; the ventricular 50 to 60, and coupled. A month later a 3 to 1 Cheyne-Stokes respiration and alternation of the pulse were noted. Large doses of digitalis produced a high grade of heart-block, but the auricular flutter persisted and is still present. The general condition of the patient is much improved. A small dose of digitalis daily is required to moderate the frequency of the ventricle. Hay has records of a man of 46 extending over a period of about seven years, demonstrating the presence of auricular flutter with a 3 to 1 ratio and occasional irregular action of the heart. When first seen alternation of the radial pulse was pronounced; this disappeared entirely while under observation. Later a 4 to 1 ratio was observed. Then in 1908 under the influence of squills the auricular flutter changed to auricular fibrillation, which in its turn gave way to a normal sequence of contraction. The heart continues to contract normally, and the patient, much improved, is earning his living.

Archives des Maladies du Cœur, Etc., Paris

September, VI, No. 9, pp. 561-624

50 Triple Rhythm with Mitral Stenosis. (Mécanisme du rythme à trois temps de la sténose mitrale.) C. Pezzi and R. Lutembacher.
51 Case of Acute Leukemia of Myeloid Type. A. Marchet and J. Rieux.
52 The Anemic Form of Acute Miliary Tuberculosis. (La forme anémique de la granulie.) N. Fiessinger.

Journal de Médecine de Bordeaux

September 21, LXXXIV, No. 38, pp. 607-620

53 Testing Permeability of Arteries in Gangrene. (L'oscillomètre sphygmométrique de Pachon appliqué à l'exploration de la permeabilité artérielle dans les gangrènes.) J. Guyot and G. Jeanneney.

September 29, No. 39, pp. 621-636

54 Biologic Cycle of the Syphilis Spirochete. G. Petges.

Journal d'Urologie, Paris

September, IV, No. 3, pp. 341-542

55 *Radium in Treatment of Prostatic Cancer. O. Pasteau and Degrais.
56 *Rectum as Receptacle for Urine. (Création d'une vessie nouvelle par un procédé personnel après cystectomie totale pour cancer.) G. Lemoine.
57 Technic for Nephrostomy and After-Care. (Moyen de dérivation permanente ou temporaire des urines totales.) J. Pakowski.
58 Uretero-Vaginal Fistula Cured by Retention Ureter Catheter. A. Boeckel.
59 Case of Nephrectomy without Drainage for Renal Tuberculosis. J. Mock.
60 Technic for Posterior Urethroscopy. R. Henry. Commenced in III, No. 6.
61 Danger of Overdoing in Treatment of Gonorrhea. (Valeur des armes que nous possédons contre le gonocoque.) J. Janet.
62 Residual Urine May Interfere with Action of Local Disinfectants. L. Boulanger.

55. **Radium in Treatment of Prostatic Cancer.**—Pasteau and Degrais comment on the extremely grave prognosis of cancer of the prostate even when removed at the first signs of trouble. The immediate results of the operation are bad and recurrence is the rule. Only about a dozen cases of prostatectomy for cancer were on record up to 1911, and the outcome of the operative cases since that date has shown no improvement. This being the case, the results of radium treatment seem to be particularly encouraging. They have applied it in fifteen cases of supposed cancer of the prostate. Two physicians were among the patients and these, realizing the gravity of their condition, displayed great perseverance in taking the course and the results in these cases were better than in any of the others. Material benefit was realized in every case, the more pronounced, the longer the course.

Three of the patients required an operation for rebellious cystitis later and in each the prostate was found materially reduced in size and of normal consistency. An illustrated description is given of the narrow tube holding the radium; the tube is pushed nearly to the tip of the catheter, just short of the opening near the tip. The radium should never be introduced with the bladder empty. They generally rinse out the bladder first and leave a certain amount of fluid in it. The radium is left in place for three or four hours, at intervals of from three to six days, suspending the treatment for nearly a month after five or six exposures. They reiterate in conclusion that there can be no question that radium has a positive action on cancer of the prostate. The exposures can be made by way of the rectum or urethra, or through an opening in the perineum or bladder. The cancer may be influenced to such an extent that the hitherto inoperable growth may be excised. The radium may at least arrest the tendency to hematuria and in favorable cases may cause the entire tumor to subside, the swollen lymph-nodes in the vicinity retrogressing also.

56. **Rectum as Receptacle for Urine.**—Lemoine reports a case of cancer of the bladder in which he implanted the ureters in the rectum after removal of the bladder, and then later made a new bladder by bringing down the sigmoid flexure between the serous and mucous membranes of the rectum, leaving the rectum free to serve as a bladder without contamination from stool. The lower end of the rectum was sutured to the bulb of the urethra. It thus emptied through the urethra and through a drain introduced through the perineum at its lowest point. The operation did not prove a success in the case reported, the sigmoid loop working up and the lower part of the rectum becoming necrotic so that the patient succumbed the eighteenth day. There was no trace of peritonitis, and Lemoine thinks the principle of utilizing the urethra in this way as the outlet for the rectum-bladder deserves attention.

Lyon Médical, Lyons

September 7, XLV, No. 36, pp. 373-408

63 Acute Poliomyelitis Following Trauma. (Poliomyélite antérieure aigue par traumatisme de la colonne cervicale chez un hérédosyphilitique probable.) A. Gonnet and R. Rendu.
64 Oiling Ponds, Etc., to Prevent Local Fogs. (Le brouillard à Lyon; comment il se forme; comment l'en empêcher.) P. Aubert.

September 14, No. 37, pp. 409-448

65 Abnormal Heart Sound Result of Pleural Adhesions; Four Cases. (Pseudo-dédoublement du deuxième bruit du cœur simulant le dédoublement mitral par bruit extra-cardiaque télésystolique surajouté.) L. Gallavardin.

September 21, No. 38, pp. 449-488

66 Compound Fracture of Leg in Man of 60. Reduction of Fragments by Iron Wire Ligature, Later with Wire Fastened in Plaster Cast. Recovery without Shortening. Chaussende.
67 Changes in the Pulse with Insufficiency of the Left Ventricle. L. Gallavardin and L. Gravier.

Presse Médicale, Paris

September 13, XXI, No. 75, pp. 749-756

68 Recurrence of Syphilis or Reinfection after Salvarsan. P. Ravaut.

September 17, No. 76, pp. 757-764

69 The Luetin Skin Reaction in Syphilis. H. Noguchi (New York).

September 20, No. 77, pp. 765-776

70 Experimental Surgery. A. Carrel (New York).
71 Pathology of the Sympathetic System and its Symptoms. (Les sympathoses.) M. Laignel-Lavastine.

September 24, No. 78, pp. 777-784

72 Technic for Examining the Bundle of His. L. Rénon and E. Géraudel.
73 *Emetine to Arrest Hemorrhage from the Lungs. (Le traitement des hémoptysies par l'émétine.) C. Flandin.

September 27, No. 79, pp. 785-792

74 Lesions in the Thyroid with Chronic Rheumatism. C. Aubertin and A. Pascano.

73. **Emetine in Treatment of Hemoptysis.**—Flandin was impressed by the prompt disappearance of blood from the stools in cases of amebic dysentery treated by hypodermic injection of soluble salts of emetine. This suggested the possibility of the drug's proving effectual in treatment of hemoptysis, and the results have more than justified this anticipation. He applied the remedy by the same technic as for dysentery (compare THE JOURNAL, March 27, 1913, p. 917), injecting into the thigh 1 c.c. of distilled water containing 0.04 c.c. of emetine hydrochlorid. The result of the injection was surprising, the hemorrhage from the lung stopping immediately. No disagreeable sensation was experienced, no palpitations, dizziness or nausea. In some cases there was no longer a trace of blood in the sputum, but usually there are occasional blackish clots for a time. In the more threatening cases the hemoptysis may return and consequently he repeats the injection twelve hours later and once on the following day to a total of five. With the exception of one case of galloping tuberculosis, the tendency to pulmonary hemorrhage was definitely arrested in all his eight cases as also in twelve others in the experience of other physicians. He determined the arterial pressure before and after the emetine and was unable to note any appreciable change in this or in the coagulation of the blood or the blood-count. The measure seems to be entirely harmless and has succeeded when all others have failed.

Revue de Chirurgie, Paris

September, XXXIII, No. 9, pp. 545-536

75 Operative Treatment of Crippled Knee. (Traitement sanglant des ankyloses vicieuses du genou.) P. Brocq. To be continued.
76 *Chondrectomy for Pulmonary Emphysema. (La théorie et l'opération de Freund dans l'emphysème pulmonaire.) S. Roubachow.
77 *Primary Cancer of the Small Intestine. (Le carcinome primitif du jéjuno-iléon.) A. Venot and A. Parcelier. Commenced in No. 5.
78 Tumors in the Spine. (La chirurgie des tumeurs du rachis et de la moelle.) G. Potel and Veaudeau. Commenced in No. 5.

76. **Chondrectomy for Emphysema of the Lungs.**—Roubachow traces the history of Freund's operation and tabulates the cases on record in which it has been applied. He thinks there is no doubt that when the chest wall loses its elasticity from hardening of the cartilages the lung does not expand and retract normally but persists distended and an emphysematous condition results. By mobilizing the chest wall, especially by resecting the costal cartilages, the wall regains its elasticity to a certain extent. Freund called attention as long ago as 1858 to the predisposition induced in the apex by degeneration of the first costal cartilage, rendering narrower the upper part of the chest wall. Degeneration of the cartilages lower down causes dilatation of the chest wall; in both types the wall loses its elasticity. Roubachow has found twenty-six cases on record in which chondrectomy has been applied with excellent results after intervals surpassing a year; also in twenty-five cases under observation for less than a year; in six other cases the improvement was only of brief duration; in four others there was improvement but it was not evident until after a certain period; in six cases no benefit was derived, and eight surgeons have reported nine fatalities.

77. **Primary Cancer of the Jejunum-Ileum.**—In about 40 per cent. of such cases the cancer develops in such a way as to obstruct the intestine earlier and more completely than with cancer of the large intestine, but this very fact enables radical treatment to be applied more promptly. In sixteen cases in which a radical operation was done before complete occlusion, thirteen of the patients were cured; the mortality was only 18.7 per cent. In ten patients operated on after occlusion had developed, only three were cured, the mortality being thus 70 per cent. Resection was done in twenty-six cases compiled here and analyzed from various points of view.

Revue de Médecine, Paris

September, XXXIII, No. 9, pp. 673-752

79 Epileptic Dementia. R. Benon and A. Legal.
80 Results of a Combined Method of Treatment for Tuberculosis. A. Krowiewicz.
81 Congenital Malformation in Two Brothers, Children of Lepers. G. Barbezieux.

Revue Médicale de la Suisse Romande, Geneva

September, XXXIII, No. 9, pp. 661-720

82 An Active Principle of Ergot. (La para-oxyphénylèthylamine.) A. Mayor and B. Wiki.
83 Thrombosis from Slight Overexertion of the Arm; Two Cases. P. Gautier.
84 Bilateral Torsion of Ovarian Cysts; Two Cases. Garin.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

September, XXI, No. 9, pp. 257-284

85 Normal Weaning. (Le sevrage normal.) A. Moussous and E. Leuret.
86 Failure of Hypophysis Treatment; Ten Cases. P. Delmas.
87 Emergency Paracentesis for the Asphyxiated Newly Born with Syphilitic Ascites. A. Bonnet-Laborderie.

Beiträge zur klinischen Chirurgie, Tübingen

July, LXXXV, No. 3, pp. 521-724

88 Tuberculosis of Tracheobronchial Lymph-Nodes and Operative Treatment. Belke.
89 Experimental Research on Homoplastic Fascia Grafts. B. Valentine.
90 Means to Detect Incipient, still Invisible Varices. (Ein palpatorisches Symptom der Klappeninsuffizienz und nicht sichtbaren Varicen.) E. Hesse.
91 Cancer of Branchial Origin; Nine Cases. H. E. Lorenz.
92 Marmorek's Antituberculosis Serum. G. Reimann.
93 Spontaneous Suppuration of Echinococcus Cyst in the Liver. Ritterhaus.
94 Crushing of Chest with Stasis Cyanosis. (Fall von Thoraxkompression mit Stauungsblutungen bes. des Augenhintergrundes.) A. Zimmermann.
95 Operative Treatment of Epilepsy; Thirty-Two Cases. F. Rauch.
96 Bile Peritonitis. C. Sick and E. Fraenkel.

97 Acute Progressive Peritonitis; 160 Operative Cases. M. Fischer.
98 Influence of Crude Paraffin Oil on Proliferation of Epithelium. (Einfluss des Rohparaffinöls auf das Epithelwachstum.) F. Esslinger.
99 Aneurysms of Arteries of Small Caliber. N. Dobrowolskaja.

Berliner klinische Wochenschrift

September 22, L, No. 38, pp. 1741-1788

100 *The Urea Index with Prostate Trouble. (Nutzen der Anwendung der Harnstoffsekretionskonstante bei den Prostatikern.) E. Legueu.
101 Curvature of the Spine. (Erfahrungen und Erwägungen über die neue Verbandbehandlung der Skoliose nach Abbott.) O. Vulpius.
102 Sporothrix Process in Upper Jaw. (Nekrotisierende Osteoperiostitis sporotrichotica des Oberkiefers.) G. D'Agata.
103 Electric Treatment of Weak Heart. (Die präcordial unipolare Spitzenausstrahlung hoher Frequenz und hoher Spannung bei Herzinsuffizienz.) O. Libotte.
104 Electric Treatment of Appendicitis. C. Salse.
105 *Technic for Bacteria Count. (Einfaches Instrument zur Bestimmung der Bakterienmenge.) E. Rosenthal.
106 Slight Diagnostic Import of Albumin Content of Sputum. A. Berkovits and F. Rudas.
107 Active Pulmonary Tuberculosis Does not Contra-Indicate Intravenous Salvarsan Treatment. R. Klokow.
108 Incarcerated Diaphragm Hernia. (Seltener Fall eines eingeklemmten Zwerchfellbruches.) J. N. Gurewitsch.
109 *Diphtheria Bacilli in the Urine. E. Freifeld.
110 *Tests for Vision on Suspicion of Malingering. (Ueber Dissimulation bei Augenleiden.) Segelken.

100. **The Urea Index with Prostate Trouble.**—Legueu states that he has calculated the urea coefficient according to Ambard's formula in 900 cases, and has found it of the greatest help in estimating conditions in the urinary apparatus. The findings throw light on kidney functioning and no other functional tests, etc., can approach it in the wealth of information it furnishes. The formula is based on the law that there is a constant proportion between the proportion of urea in the blood and the square root of the figure representing the amount of urea eliminated in the urine. (A previous article on the subject by Legueu was summarized in THE JOURNAL, May 13, 1913, and the formula was given in THE JOURNAL, 1912, lix, 229 and 818.) Taken in connection with the clinical picture and investigation of the factors of the dropsy-inducing nephritis, it proves a valuable guide whether to operate or not for prostatic disturbances. He cites a number of instances to show the importance of the information thus derived, the operation or the course of the cases confirming in every particular the correctness of the deductions based on Ambard's formula.

105. **Easy Bacteria Count.**—Rosenthal uses a centrifuge glass the tip of which is drawn out into a graduated capillary with a rubber screw cap. A drop of mercury is placed in the cap and the bacteria assembling in the capillary on centrifuging can be measured above the mercury. The method is approximately accurate and is particularly useful for comparing the bacteria counts between different diseases or cases or at different periods in the same case or from different cultures.

109. **Diphtheria Bacilli in the Urine.**—Freifeld states that diphtheria bacilli can still be cultivated constantly from the urine of a girl baby who had diphtheria at the age of ten months, six months ago. The diphtheric throat process was so mild that its true nature was not recognized but the bladder then became involved and there has been periodical expulsion of scraps of false membranes ever since. The bladder process is mild also; the vagina and urethra are not affected. He has not been able to find any record in the literature of this localization of a diphtheric process in the bladder mucosa. Diphtheria antitoxin was given when the bacilli were first found in the urine but it seemed to have no effect. Freifeld has examined the urine of ten other diphtheria patients and found the bacilli in the urine in four; the latest examination was made four weeks after the beginning of the diphtheria.

110. **Deception in Tests for Vision.**—Segelken was examining a man for a position requiring normal visual capacity. With one eye covered with a clean folded handkerchief which the man took from his pocket and pressed over the eye, the vision with each eye in turn seemed satisfactory. Segelken discovered just in time, however, that the folded handkerchief had a round hole cut through all the thicknesses, which were basted together.

Deutsches Archiv für klinische Medizin, Leipsic

CXI, Nos. 5-6, pp. 417-583. Last indexed Oct. 4, p. 1333

111 Pernicious Anemia with Myeloblastosis. (Wucherung myeloblastenähnlicher Elemente—diffuse Myeloblastose?—in den retroperitonealen Lymphdrüsen in einem Fall von perniziöser Anämie.) K. Nicol.
112 Causes of Retention of Chlorids in Fever. (Zusammenhang zwischen Funktion der Nieren und Chlorretention bei fieberhaften Krankheiten.) (Permeabilitätsänderung der Zellen als Ursache der Chlorretention bei fieberhaften Krankheiten.) J. Snapper.
113 Lymphogranulomatosis. (Fall generalisierter Lymphdrüsenschwellung lymphatisch-endothelial-bindegewebiger Natur. Gleichzeitig Beitrag zur Lehre von der Granulomatosis maligna.) R. Hertz and T. Wretowski.
114 Respiration in Heart Disease. (Atmung bei Herzkranken.) R. Reinhardt.
115 Acetone Bodies Found in the Liver. (Vorläufige Mitteilung über den Ort der Acetonkörperbildung nach Versuchen mit Phlorrhizin an der partielle ausgeschalteten Leber nebst einigen kritischen Bemerkungen zur sog. Fleischintoxikation beim Eck'schen Fistelhunde.) F. Fischler and H. Kossow.
116 Changes in the Electrocardiogram Corresponding to Changes in the Work of the Heart. (Experimentelle Untersuchungen über die Veränderungen des Elektrokardiograms bei Aenderung der Herzarbeit.) W. Weitz.
117 Curable Acute Liver Disease. (Heilbare akute Hepatitis.) A. Bittorf.
118 Lymphogranulomatosis. R. v. Jaksch.

Deutsche medizinische Wochenschrift, Berlin

September 25, XXXIX, No. 39, pp. 1865-1920

119 *Present Status of Transplantation of Organs. R. Stich.
120 *Hot Baths in Treatment of Bronchitis and Pneumonia in Young Children. Arneth.
121 The Blood and Cerebrospinal Fluid with Disease of the Central Nervous System. V. Kafka.
122 *Nature of General Anesthesia and Allied Phenomena. (Ueber Narkose und verwandte Erscheinungen.) J. Traube.
123 Successful Resection of Diaphragm. (Zur Resektion des Zwerchfells.) J. Jankowski.
124 Campaign Surgery. (Hat der Balkankrieg uns neue Gesichtspunkte bezüglich der Behandlung kriegschirurgischer Verletzungen gebracht?) D. Herhold.
125 Radium in Treatment of Plastic Induration of the Penis A. Dreyer.
126 Pregnancy Intoxication. (Zur Therapie der Schwangerschaftstoxikose.) E. Engel.
127 Serodiagnosis of Syphilis. (Die Herman-Perutzsche Syphilisreaktion.) J. Kallos.
128 New Seaside Sanatorium for Children. (Das Kaiser Wilhelm-Kinderheim in Ahlbeck.) v. Niedner.

119. **Present Status of Transplantation of Organs.**—Stich gives an interesting review of what has been accomplished in this line to date, his conclusion being that the matter is still in the tentative stage.

120. **Hot Baths in Bronchitis and Pneumonia in Young Children.**—Arneth emphasizes that air and more air is the imperative need in treatment of respiratory affections in young children. He also urges the extreme necessity of changing the position of the child every hour or so. The prone position aids mechanically in draining away the secretions as the pneumonic processes are usually most intense at the back of the lung. In treatment he has long made a practice of cold packs and baths but has changed to hot baths of recent years, finding them superior in every respect, especially for weaker children who chill readily at the surface while the febrile temperature accumulates in the center. The hot baths draw the heat to the surface, and he has never witnessed any injurious effect from their use. The higher the temperature, the weaker the child and the more defective the peripheral circulation, the more frequent the baths, up to five a day. With a temperature of 39 C. (102.2 F.) he gives the bath for ten minutes. The water is kept at 41 C. (105.8 F.) adding more hot water as it cools. These hot baths are easy of application while the temperature goes down under them to a remarkable extent. The reduction is most marked in thirty to sixty minutes afterward. A temperature over 40 or 40.5 C. (104 or 105 F.) does not contra-indicate the baths for infants or very young children, but with more robust and older children merely warm baths may be preferable.

He concludes the hot bath with a cool douche for which the conditions are extremely favorable as the back of the neck and chest are intensely hyperemic so that the reflex gasp can be elicited most readily. One nurse holds the child's head with both hands, protecting the mouth and nose against aspiration of water, and raises the child out of the hot water until the back of the neck is exposed; a second nurse then dashes a dishful of cold water fresh from the faucet over the

back of the neck, just once. The child gasps for breath, exerting all the auxiliary muscles. It is then laid back in the hot water and the cold water is dashed on the chest. The whole procedure lasts only a few moments, after which the child is dried and wrapped in warmed clothes. No after-sweating is observed and the child is ready to eat. No unfavorable action on the heart was ever detected even with much debilitated infants. On account of the excellent action in every respect of the hot baths, he continues them once a day into convalescence if the child still coughs, even when there is nothing pathologic to be detected in the lungs. He makes a practice of applying the hot baths not only in febrile bronchitis, bronchiolitis and bronchopneumonia, but also in prophylaxis in cases of nasal catarrh, only that with this he refrains from the cold douche and wraps the child warmly to induce sweating. Omitting the cold douche, he applies the hot baths also in various affections of infants, with or without fever, when the peripheral circulation is defective. Great care must be taken that the child's bed is well warmed to prevent secondary loss of heat after the bath. In conclusion, he reiterates that the hot bath with the concluding dash of cold water must be regarded as a specific method of treatment for bronchitis and pneumonia in young children. It reduces the fever, acts as a revulsive and stimulates expectoration and deeper breathing, and thus prevents or puts an end to atelectasia and stagnation of the secretions, while it has a marked soothing, refreshing and sleep and appetite-promoting action and shortens the course of the disease. He gives a number of curves and tables to illustrate the effect of the hot baths.

122. **Physical Factors Responsible for Action of Anesthetics,** Etc.—Reviewed editorially.

Deutsche Zeitschrift für Chirurgie, Leipsic

September, CXXIV, Nos. 1-4, pp. 1-429. A. Bergmann Festschrift

129 *Solitary Cysts in the Long Bones. G. v. Bergmann.
130 *Chronic Cystic Mastitis and Malignant Degeneration. A. Bertels.
131 Remarkably Rapid Healing of Wounds in Lepers. R. Biehler.
132 *Operative Treatment of Epilepsy. L. Bornhaupt.
133 Loose Bodies in Joints. (Zur Kasuistik der Gelenkmäuse.) O. Brehm.
134 Mal Perforant of the Foot. C. Brutzer.
135 Temporary Ligation of Portal Vein; Three Cases. N. Burdenko.
136 No Wassermann Reaction in Twenty-Seven Cancer Cases. J. Eliasberg.
137 *Transvesical Operative Treatment of Prostatic Hypertrophy; Thirty-One Cases. G. v. Engelmann.
138 Vast Accumulation of Gas in Open Abdominal Cavity. C. Falkenburg.
139 Ivory Peg in Treatment of Fracture. (Wert der Hornbolzung und deren Technik.) W. Greiffenhagen.
140 *Incarcerated Hernia; 420 Cases. V. Gussew.
141 Firearm Wounds of the Lungs; 571 Cases. (Ueber Lungenschüsse im Kriege 1904-1905.) O. Holbeck.
142 *Volvulus of the Large Intestine. J. Jankowski.
143 Changes in Structure of Bone Substance in Osteomyelitis, and Their Causes. P. Klemm.
144 Experimental Deforming Arthritis. v. Manteuffel.
145 Diagnosis and Treatment of Firearm Wounds of the Spleen. (Schussverletzungen der Milz.) F. Michelsson.
146 *Diagnostic Significance of Yellow Tint — Xanthochromia—of the Cerebrospinal Fluid. E. Schwarz.
147 Ligation of Jugular Vein in Operative Treatment of Otitic Sinus Thrombosis; Twenty Cases. F. Voss.
148 *Results of Operative Treatment of Pleural Empyema in Children. F. Werner.

129. **Cyst in Femur.**—All but one or two of the twenty articles in this number of the *Zeitschrift* issue from Russian hospitals. In Bergmann's case a solitary cyst developed in the femur after an oblique fracture.

130. **Chronic Cystic Mastitis.**—Bertels states that he has encountered fourteen cases of this affection in the last three years and describes the history, findings and probable mechanism in these cases, in six others in his experience, and in six somewhat similar cases in men. A transformation into cancer was evident in seven of the female cases and in a few of the men.

132. **Operative Treatment of Epilepsy.**—The result in four of the eleven cases reported were extremely satisfactory. The epilepsy followed acute poliomyelitis in several of the cases. With the jacksonian type, there is little hope of benefit from the operation if it is delayed until the brain tissue has hardened at the spot and become atrophied. It is not always necessary to excise the nerve-center involved; in one of the cases complete recovery followed merely draining the edema of the arachnoid and making a valve-opening in the dura and skull to relieve the pressure, leaving the facialis center untouched; there has been no recurrence of the epilepsy since. The patient was a boy of 3½ who had been having up to eleven seizures a day following a fall eighteen months before. In the seizures the boy fell backward suddenly, lost consciousness, and there was first a tonic spasm of the right facialis and then clonic twitching, with spasms in right arm and leg, the seizure concluding with twitching in the left facialis domain and left arm and leg.

137. **Prostatic Hypertrophy.**—Engelmann tabulates the details of ninety-one cases in which he applied the Bottini technic and thirty-one with transvesical prostatectomy. In the first group 76.6 per cent. were cured and 11.1 per cent. materially improved; no effect was apparent in 3.3 per cent. and 8.9 per cent. succumbed to preexisting infectious complications. In the thirty-one prostatectomy cases, 80.6 per cent. were cured; 19.4 per cent. died but in only one case could the operation itself be incriminated in the fatality. In this case the bladder had been sutured at once and urine seeped out through the wound. In all the cases afterward he made a point of draining through the abdominal wound. The improvement in the total material has been permanent in all but three patients; these required brief catheterization anew years later. He advocates prostatectomy in all cases of severe infection of the urinary passages as it permits more effectual draining. If the kidneys are much diseased, however, a radical operation of any kind is contra-indicated.

140. **Incarcerated Hernia.**—Gussew concludes from analysis of his 420 cases of incarcerated hernia that the mortality can be reduced only by the more frequent restriction to local anesthesia, by improving the operative technic, by sending the patient to the hospital sooner, and by refraining from attempts to reduce the hernia by taxis. His mortality was 27 per cent. of the total cases and also 27 per cent. of the operative cases outside of those in which taxis had been attempted. An ascaris protruded from the wound the sixteenth day in one case, the patient a woman of 54.

142. **Volvulus of the Large Intestine.**—Jankowski devotes seventy-eight pages to this study of the prognosis with volvulus of the large intestine, as observed in fifty-three cases in the last ten years. The volvulus involved the cecum in five cases, the sigmoid region in the others. In the cecum cases the patients were men between 30 and 40; all were operated on and two recovered. The outcome in all cases of volvulus depends on the promptness with which conditions are corrected by an operation. When intestinal occlusion is diagnosed, he gives the patient a high oil enema and follows at once with a laparotomy if the enema fails to relieve. He generally siphons out the contents of the stomach, too. In twenty-four of his cases the sigmoid flexure had become twisted into a knot with the small intestine and only two of these patients survived. There was an interval of nearly four days before the operation in several cases and the intestine had twisted completely around, 300 degrees and more, thus injuring the wall beyond repair. In about half the cases there had been preceding attacks of pain in the region. In twenty-four cases the torsion was not over 180 degrees and 75 per cent. of these patients recovered. One in this group was 82 years old; the mesosigmoid was sutured to keep it from twisting again.

146. **Discolored Cerebrospinal Fluid.**—Schwarz emphasizes the importance of a yellow tinge to the cerebrospinal fluid in case of trauma affecting the head as it decides the question as to intracranial hemorrhage. Other features of the fluid may also point to the source of the hemorrhage. Xanthochromia may accompany other morbid conditions but it is of less diagnostic import then.

148. **Operative Treatment of Pleural Empyema in Children.**—Werner reports 178 cases of pleural empyema in the last ten years. The mortality was only 11.5 per cent. in the sixty-one idiopathic cases while it was 21.1 in seventy-one following

pneumonia; 33.3 per cent. in the six measles cases, and 38.5 per cent. in the thirty-nine scarlet-fever cases. The mortality was the highest with mixed staphylococcus and streptococcus infection. In regard to age, the mortality was 28.6 and 48.1 per cent. in infants up to 1 and 2 years old; it dropped to 19.6; 11.3, and 18.2 per cent. at the ages up to 5, 10 and 15. The operation was generally resection of one rib and drainage; the mortality after this was 15.9 per cent., while it was 17.8 per cent. in twenty-eight cases in which two ribs were resected. The balance is all in favor of the lesser intervention; healing was complete in only sixteen days in one case.

Medizinische Klinik, Berlin

September 21, IX, No. 38, pp. 1525-1573 and Supplement

149 *Acute Congestion of the Liver; Three Cases. (Perakute Stauungsleber.) N. Ortner.
150 Rare Forms of Pericarditis. G. Singer.
151 *Acute Necrosis of the Pancreas. H. v. Haberer.
152 Operative Treatment of Ptosis of the Eyelid. A. Elschnig.
153 Serodiagnosis in Tabes. E. Redlich.
154 Temperature in the Aged. (Verhalten der Körpertemperatur im Greisenalter.) H. Schlesinger.
155 *Ultimate Outcome in 4,134 Cases of Syphilis. E. Mattauschek and A. Pilcz.
156 Tests of Liver Functioning. (Kombinierte Proben auf Leberinsuffizienz.) A. Oszacki and F. Wagner.
157 Secondary Routes for Perception of Sounds. (Zur Frage der sekundären Hörbahnen.) A. Kreidl.
158 Serodiagnosis in Syphilis. (Zur Kenntnis des diagnostischen Wertes der v. Dungernschen Modifikation der Wassermannschen Reaktion im Vergleich mit dem der v. Wassermannschen Originalmethode.) A. Balcarek.
159 Syphilis as Unsuspected Factor in Internal Diseases. (Eine häufige Aetiologie innerer Krankheiten.) G. Liebermeister.
160 *Summer Diarrhea of Infants. (Sommerdurchfall des Säuglings und seine Ursachen.) A. Epstein.

149. **Acute Congestion of the Liver.**—Ortner found nothing in a man of 52 to explain the recurring attacks of severe pain back of the sternum and in the upper abdomen; it suggested intermittent claudication. There was moderate dilatation of the heart and signs of chronic mild myocarditis and mild arteriosclerosis; the urine was normal. While he was still puzzling over this case another patient applied with the same clinical picture, but this one stated that his attack of pain came on after climbing a hill. Ortner then had the first patient climb the hill and this brought on the attack. Both patients recovered entirely on staying in bed for a few days. During the attack the liver was found extremely enlarged, reaching from the fifth intercostal space to the umbilicus, the mechanical conditions amply explaining the pain back of the sternum. The urine was concentrated, with considerable urobilin. The same clinical picture was soon presented by a third patient; the paroxysmal attack following the test hill-climbing was so severe that the patient went to bed without returning to report at the physician's office. The whole trouble was evidently extremely severe acute congestion in the liver, and Ortner thinks that this is a wise effort on the part of Nature to relieve the strain on the weak right heart from the physical exertion. Nature drives the blood into the liver and relieves conditions in the heart as from a venesection, giving the heart a chance to recuperate.

151. **Acute Necrosis of the Pancreas.**—Haberer emphasizes the importance of the after-care following an operation for necrosis of the pancreas, insisting that the operation itself is a minor part of the treatment. We must bear in mind that the peritoneum with acute necrosis of the pancreas is far from normal, and it cannot be entrusted with the tasks usually imposed on it under other circumstances after an operation. The tampon and the drain should be left undisturbed much longer than in other conditions. The drain must be introduced at the lowest point without fail, and be merely packed around, the ends free, not covered with the tamponing gauze. He has had seven patients with acute necrosis of the pancreas; two were not seen until the fourth or fifth day and the pulse was good and not accelerated. He consequently assumed that the heart was not suffering seriously and that the patients would pull through without an operation, which proved to be the case. He advises this expectant treatment in all such cases not seen until late, but otherwise, under all conditions he advocates prompt operative treatment as this alone offers any guarantee of safety, whether the trouble is circumscribed or diffuse. An operation is also indicated in the advanced stages as a last resort when the pulse is much accelerated, showing the severe toxic condition. He emphasizes further the necessity for examining the biliary passages in all cases of necrosis of the pancreas and, in case a tendency to cholelithiasis is evident, the suitable operation on the bile apparatus should be done without delay, restricting it to what is absolutely necessary.

He reports the case of a young woman of 25 at the fifth month of her first pregnancy who developed acute necrosis of the pancreas. She was slender, the vascular system was normal, and alcoholism and syphilis could be positively excluded. She had been previously apparently healthy except for a mild attack several years before, now retrospectively diagnosed as a gall-stone colic. The diagnosis was obscured by uncontrollable vomiting and by pains in the appendix region. The pulse was accelerated, and the sudden collapse was ascribed to perforation-peritonitis of appendicitic origin. The median laparotomy, however, revealed the acute necrosis of the pancreas, and the gall-bladder was found clogged with stones. It was removed, while the pancreas was slit its entire length, tamponed and drained. The pulse kept high for a day or so, the temperature slightly above normal for a week, but the patient made a good recovery. The last of the drains was not removed until the end of the fifth week. The pregnancy was apparently not interfered with and seems to be progressing normally, now at the seventh month. Haberer has operated in five cases of acute necrosis of the pancreas but was able to save only two of the patients. In both these cases he operated at the same time on the bile apparatus.

155. Reviewed editorially.

160. **Summer Diarrhea of Infants.**—Epstein argues that a number of causes cooperate in the production of summer diarrhea, but admits that it is possible for infants to suffer from heat-stroke the same as adults. Excessive heat not only leads to the spoiling of milk but it produces favorable conditions for infections. At the same time, his own experience has been that with good hygiene the mortality need be no higher in the heated term than at other times. In reviewing his experience he states that during the year 1880, 35.5 per cent. of the 484 children who died out of the 2,978 admitted to the old foundling hospital in his charge, succumbed to intestinal trouble. In 1900 the new building was occupied, and at once the mortality dropped. In the thirteen years since, 820 have died of the 18,311 infants admitted; 27 per cent. of the deaths occurred January to March; 31 per cent., April to June; 22 per cent., October to December, and only 20 per cent., July to September. During the intense heat of July and August, 1911, only four infants died and none from gastro-intestinal trouble; two were feeble prematurely born, one died of erysipelas and the fourth from meningitis.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXVI, No. 4, pp. 553-694. Last indexed Aug. 30, p. 719

161 *Experimental Research on Effect of Chloroform on the Liver. (Wesen der zentralen Läppchennekrose in der Leber und Rolle des Chloroforms bei dem sogen. Narkosenspättod.) F. Fischler.
162 *Various Forms of Movable Cecum. T. Hausmann.
163 Ochronosis. E. Jantke.
164 *Local Conditions Predisposing to Pulmonary Tuberculosis. (Die Entstehung der Lungenphthise auf Grund experimenteller Untersuchungen.) A. Bacmeister.
165 *Spastic Conditions in the Stomach. (Zur Pathologie und Diagnostik des Gastrospasmus.) G. Holzknecht and A. Luger.

161. **Chloroform and Other Causes of Necrosis of the Liver.**—In the opening article in this "Borderland" journal, Fischler describes experimental and clinical experiences which confirm the assumption of the close connection—actual affinity—between the liver and the pancreas; injury of the latter involves also the liver cells. The liver is evidently the place where ferments are destroyed, especially trypsin. When more than the normal proportion of trypsin gets into the blood-stream, either from overproduction or lessened destruction, there is liable to be necrosis in the central liver cells. He states that in his experiments on dogs he always used chloro-

form with a little morphin and never had any trouble until in a recent series of experiments with an Eck fistula, twelve dogs died and in each necrosis of the central liver cells was evident. He also reports the case of a man with a lymphosarcoma originating in a retrogastric lymph-node, the growth encroaching on the pancreas and leading to fat-tissue necrosis. At necropsy the central liver cells showed the same type of necrotic lesions as had been found in the dogs. No chloroform had been given in this case. These facts and other evidence presented demonstrate, he says, that exclusion of the portal vein cannot alone be responsible for the necrosis of the liver. Also that animals with an Eck fistula are not more susceptible to chloroform than others. Also that the susceptibility for chloroform is proportional to the repeated or prolonged administration. He insists that sufficient attention has not been paid to this point hitherto, and yet injury from the chloroform predisposes the liver to necrosis, although the latter can develop without chloroform. When it occurs with chloroform, it is merely the last straw rendering manifest the injurious effect of trypsin on the parenchyma of the liver; the liver yields when the various burdens and injuries imposed on it reach a certain limit. One practical conclusion from his research is the necessity for refraining from the use of chloroform when there is the slightest suspicion of abnormal conditions in the pancreas or in the liver. He mentions with approval that the Americans refrain from giving chloroform in pregnancy, assuming that it is liable to injure the liver. Practical experience has thus preceded the theoretic bases for this. He gives the details of his experiments, with colored plates of the findings in the liver.

162. **Movable Cecum.**—Hausmann states that there are various forms of movable cecum; the mesentery may be exceptionally long or exceptionally short. There is no characteristic clinical picture even when the anomaly is causing symptoms. The pains may be in the right half of the abdomen or in the epigastrium and the trouble may be confounded with almost any affection liable to cause pain in the right half of the abdomen.

164. **Local Predisposition to Apical Processes.**—Baemeister succeeded in inducing in young rabbits conditions analogous to the abnormally narrow upper aperture of the thorax which has been incriminated in the development of apical tuberculosis. He passed a wire loosely around the upper part of the thorax, thus binding the animal's chest as it grew and increased in size, and the condition thus produced favored the development of an apical process when the animals were infected with tubercle bacilli. The apical process developed both by blood-borne and air-borne infection but only when there was already some old tuberculous focus elsewhere in the body. It is possible that the relative immunization in this case determines the character of the apical process. His research thus confirms anew the importance of an unduly narrow upper part of the chest as a factor in apical processes, whether it is the result of anatomic narrowing of the upper aperture or of the individual's stooping attitude, from habit or from the nature of his work. Tubercle bacilli finding their way into the apex are normally swept out again by the lymph-stream; the above mechanical conditions interfere with this lymph-flushing. The lymph-passages may also be obstructed by inhaled dust, and this likewise predisposes to the development of apical tuberculosis in the shoulder-bound.

165. **Spastic Contraction of the Stomach.**—Holzknecht and Luger give illustrated descriptions of sixteen cases of this kind and expatiate on the unexpected frequency of gastrospasm and the necessity for differentiating between it and hypertonicity of the stomach, which is accompanied always by normal or increased peristalsis. With gastrospasm there is no peristalsis. Hypertonicity always affects the whole stomach, while gastrospasm may be circumscribed, as with hour-glass stomach; regional, hitherto observed only in the pylorie and middle parts; or the whole stomach may be contracted. Gastrospasm may simulate the clinical picture of an ulcer while the radiologic findings suggest cancer, especially when the spastic contraction is confined to the pyloric region, in which case it resembles remarkably a ring carcinoma in this region.

The gastrospasm always entails great disturbance in motor functioning; the stomach may be evacuated with unusual rapidity on account of insufficiency of the pylorus (principally with duodenal ulcer, caustic corrosion of the stomach and duodenum and gastric phlegmon). In other cases the pylorus may be contracted so that evacuation is impossible. This occurs principally with disease in the bile passages and with the extreme hypertonicity in morphin cases. Gastrospasm can be best studied by roentgenoscopy or endoscopy, but the only means to differentiate it is by the changes in the picture observed at different times and by the subsidence of the spasm under the influence of atropin or papaverin. In one of the cases illustrated the spasm relaxed and the roentgenoscopic findings became normal during the ten or fifteen minutes the patient was being examined; in another case the subsidence occurred as completely but more gradually. In another case the stomach appeared normal; an hour later there was total gastrospasm; and this subsided anew in another hour. In four cases the findings were entirely different on different days. In other cases the spasm relaxed under the influence of atropin. In one instance the stomach did not empty itself for twenty-four hours, but under the atropin there was no residue after two hours. As the hypomotility in this case thus changed to hypermotility, although the gastrospasm still persisted to a certain extent, it seems possible that atropin acts electively on the pylorus and thus might prove effectual in treatment of abnormally long retention in the stomach.

Münchener medizinische Wochenschrift

September 23, LX, No. 38, pp. 2097-2152

166 Experimental Atherosclerosis and Cholesterinemia. L. Wacker and W. Hueck.
167 Combined Treatment of Cancer. (Erfahrungen mit den chemisch-physikalischen Behandlungsmethoden des Krebses im Samariterhause.) R. Werner.
168 Thorium X in Internal Diseases. O. Meseth.
169 Radium and Mesothorium in Deafness and Tinnitus. Hugel.
170 *Induced Fluorescence as Aid in Radiotherapy. H. Krukenberg.
171 The Blood-Serum in Gout. R. Ehrmann and H. Wolff.
172 Collargol in Prophylaxis of Peritonitis. B. Credé.
173 Tapeworm and Appendicitis. S. Pollag.

170. **Induced Fluorescence as Aid in Radiotherapy.**—Krukenberg comments on the drawbacks of radiotherapy by the methods in vogue, especially that it is impossible to focus the rays on the actual point that needs them. Quantities of rays go astray in the adjacent tissues or are lost by the filtering required to prevent injury of sound tissues. Great advance would be realized if we could generate the therapeutic rays directly in the disease focus, and he thinks that this may be practicable. Of the substances which generate new light-rays when submitted to the action of the Roentgen or radium rays, those used in the fluorescent screen are available. Still more powerful is calcium tungstate ($CaWO_4$) which is insoluble in water, alcohol and physiologic salt solution, and thus is pharmacologically inert. Animals injected with this tungstate become luminous after exposure to the Roentgen rays. An intensively luminous spot appears in the rabbit ear after injection of a small amount of the tungstate followed by exposure to the Roentgen rays, and this spot persists brilliantly luminous for thirty days. The photograph of an animal that has been injected in this way shows an intense dark shadow at the site of the injection even as late as forty days afterward. Krukenberg injected into a mammary cancer 0.4 c.c. of calcium tungstate suspended in physiologic salt solution, after which the breast was exposed to the Roentgen rays (⅔ erythem dose) on three successive days. On the fourth day the breast was amputated. The tumor tissue showed marked processes of degeneration and necrosis in and around the point of the injection while nothing of the kind was evident elsewhere in the tumor. The intensity of the necrosis diminished with the distance from the site of the injection. Further trials of the method in rabbits with experimental tuberculosis demonstrated that the tungstate plus Roentgen-ray exposures seemed to have materially retarded the progress of the tuberculous process.

Virchows Archiv, Berlin

CCXIII, Nos. 2-3, pp. 165-572. O. Pertik Festschrift

174 Case of Dissociation of Auricular and Ventricular Function. (Kammerautomatie und Vorhoflimmern.) J. v. Angyan.
175 Subendocardial Hemorrhage. L. Aschoff.
176 The Thermoprecipitin Reaction. A. Ascoli.
177 Congenital Bullous Epidermolysis. S. C. Beck.
178 Sensitized Vaccine. A. Besredka.
179 Giant-Celled Sarcoma in Infant's Intestine. (Riesenzellsarkom im Darm eines 9 Monate alten Kindes.) Z. v. Bokay.
180 Deformity of the Kidneys in Infant. (Hochgradige Entwicklungsstörung der Nieren bei einem Neugeborenen in Verbindung mit Laryngealstenose und Verkrümmung des Unterschenkels.) K. Buday.
181 Benign Hypertrophy of the Pylorus. H. Chiari.
182 Changes in Heart Valves in 78 per cent. of Twenty-Seven Cases of Acute Infectious Diseases. L. Czirer.
183 *A Successful Anthrax Serum. (Rauschbrandserum.) L. Detre.
184 Changes in the Bones in Infectious Diseases in Children. (Veränderung der Knochen bei Infektionskrankheiten im Kindesalter.) A. Feher.
185 Histopathology of Amaurotic Idiocy. E. Frey.
186 Alcaptonuria in a Tuberculous Patient. F. v. Gebhardt.
187 Hard Subcutaneous Tumors. (Fall von Fibroma durum multiplex petrificans.) E. Gergö.
188 Serotherapy in Diphtheria at Budapest. S. v. Gerloczy.
189 Sympathetic Ophthalmia. (Zur Pathologie der sympathischen Augenentzündung.) W. Goldzieher.
190 Tumor in Pineal Gland. (Eine Zirbeldrüsengeschwulst.) M. Goldzieher.
191 Angiokeratoma: Four Cases. J. Guszman.
192 Foreign Body in the Kidney. (Fremdkörper in der Niere.) J. P. Haberern.
193 *Immunity to Tuberkulosis. J. Hollos.
194 Rheumatic Myocarditis. T. Huzella.
195 Affinity of Mercuric Chlorid for Bacteria and Red Blood-Corpuscles. (Zur Sublimat-Affinität.) L. Kalledey.
196 Benzol in Polycythemia. G. Kiralyfi.
197 Latent Pulmonary Tuberculosis. J. Kovacs.
198 Structure of Lipoid Cells. (Ueber pigmentierte Netze und Kristallimitationen in Lipoidzellen.) E. Krompecher.
199 Pathology of Tuberculosis. O. Lubarsch.
200 Importance of Early Operation for Cholecystitis. (Frühoperation bei Gallenblasenentzündungen.) E. Makai.
201 Urobilinogenuria in Diagnosis. B. Molnar.
202 Source of Origin of Staphylococcus Agglutinins and Opsonins in the Connective Tissue E. Neuber.
203 Aneurysm of Ascending Aorta of Mycotic-Embolic-Thrombotic Origin. E. Neuber.
204 Tumor in Fourth Ventricle. E. Nobel.
205 Movements of the Vocal Cords. (Ueber die konträren Bewegungen der Stimmbänder.) A. Onodi.
206 Decreased Acidity of the Urine in Tuberculosis. T. Pertik.
207 *The Wertheim Operation for Uterine Cancer. (Heilung des Gebärmutterkrebses mittels der Wertheimschen Operation.) E. Petö.
208 Sartorius Flap to Close Inguinal Hernia. E. Polya.
209 Scarlet Fever Almost Invariably a Mixed Infection. K. Preisich.
210 Share of Influenza Bacillus in Disease of the Urogenital Apparatus. D. Raskay.
211 Action of Thorium-X on the Respiratory Metabolism. N. Roth and J. v. Benczur.
212 Structure of the Intima in Atherosclerosis. S. Rusznyak.
213 Actinomycosis of the Liver. J. C. Seenger.
214 The Normal Qualitative Blood-Picture. A. v. Torday.
215 The So-Called Hypertrophic Pulmonary Osteo-Arthropathy. J. Vas.
216 Intravertebral Neurodermoid Cyst. T. v. Verebely.
217 Histology of Gliomas. D. Veszpremi.
218 Injuries to the Blood-Vessels of the Kidney. C. Vidakovich.

183. **A Serum for Anthrax.**—Detre announces the production of a successful curative serum for symptomatic anthrax obtained by immunizing a horse with cultures of the bacilli. Details of the development and use of the serum are given. The serum seems to be strongly bactericidal and contains agglutinins which agglutinate anthrax bacilli in very minute dilutions. This specific agglutinating power can be utilized in identifying the bacilli of symptomatic anthrax.

193. **Immunity to Tuberculosis.—Hollos** believes that, contrary to the generally accepted opinion, the children of the tuberculous inherit a certain degree of immunity. Children of tuberculous parents are more frequently affected than children of healthy parents simply because they are so much subjected to infection. Individuals are especially disposed to tuberculosis if their body cells are incapable of the production of immune bodies, and this is noticeably true of the children of alcoholics. Symptoms of intoxication show that the patient is capable of reacting and are also a measure of his sensitiveness to the toxin. When the organism ceases to react with such symptoms the prognosis is unfavorable. The more sensitive the patient is, the smaller must be the dosage of either tuberculin or immune bodies and the longer the interval between doses. If a patient under treatment who has not shown symptoms of intoxication begins to show them, this is evidence that the effort to arouse immunity is successful and that the organism is beginning to react, thus making the prognosis more favorable.

207. **Wertheim's Operation for Uterine Cancer.**—A table is given showing the clinical symptoms, microscopic findings and results in 100 cases of uterine cancer in which the operation was done by Wertheim's method. Two were cancer of the body of the uterus. One of these has had no recurrence for twenty-one months to date. The other has not been heard from. Of the carcinomas of the cervix, twenty-seven were mild and seventy-one severe cases. The primary mortality was fourteen; ten of the patients are in good health after five years; fifteen after three or four years and three after one or two years. Recurrence followed in twenty-three cases; thirteen have died since without local recurrence and there is no report from twenty.

Wiener klinische Wochenschrift, Vienna

September 25, XXVI, No. 39, pp. 1521-1600

219 Chlorosis and the Gastro-Intestinal Tract. (Ueber Anämien.) E. v. Neusser.
220 Experimental Research on Immunization Against Diphtheria. (Ueber die Immunisierung gegen Diphtherie mit Toxin-Antitoxingemischen nach von Behring.) A. Schattenfroh.
221 Influence of Anesthetics on Mouse Tumors. (Wirkung von Morphin, Kokain und Schleichscher Lösung auf das Wachstum der transplantablen Mäusetumoren.) G. Joannovics.
222 *Radium Treatment of Cancer. W. Latzko and H. Schüller.
223 Allergy to Non-Proteins. R. Hift.
224 Experimental Syphilis in the Rabbit. L. Arzt and W. Kerl.
225 Chemical Action of the Becquerel Rays. A. Fernau and M. Schramek.
226 Salvarsan in Abortive Treatment of Syphilis. R. Frühwald.
227 Albuminuria Induced by Test Lordosis as Sign of Tuberculosis. N. v. Jagic.
228 *Ingestion of Bile as Remedy for Gastric Hyperacidity. (Eine neue Therapie der Hyperazidität des Magens, insbes. bei ulzerösen Prozessen.) K. Glaessner.
229 Importance of the Anesthesia for the Course of a Laparotomy. H. Finsterer.
230 Stab-Wound of Aorta. (Retrograde Embolie in die Arteria fossae Sylvii, ausgehend von einem Thrombus der Aorta descendens, nach einer Stichverletzung der letzteren.) H. Körbl.
231 Removal of Bullets from Region of Gasserian Ganglion. P. R. v. Walzel.
232 Case of Pregnancy Hypertrophy of the Breasts and Accessory Mammary Glands. S. Erdheim.
233 Medical Inspection of Schools. (Zur Schularztfrage.) L. Teleky.
234 *Operative Treatment for Defective Thyroid Functioning. (Chirurgische Behandlung des Hypothyreoidismus.) W. v. Jauregg.

222. **Radium in Treatment of Cancer.**—Latzko and Schüller describe with a colored plate of the findings seven cancer cases in which radium treatment was applied. The results, they state, justify the conclusion that if the exposures are made with all the precautions learned from the general experience with radiotherapy to date, the radium therapy is an inestimable advance in the treatment of malignant disease. Operable cancers should be excised, but in the inoperable cases, radium is liable to improve conditions to an extent hitherto considered impossible, bordering close on an actual cure. This result can be realized, however, only with the longest possible applications of the largest possible doses. The tissues after the exposures show the same changes as after corresponding Roentgen-ray or mesothorium exposures.

228. **Bile in Direct Treatment of Gastric Ulcer and Hyperacidity.**—The idea occurred to Glaessner that the benefit from a gastro-enterostomy may be due in part to the bile which finds its way into the stomach through the artificial opening. Experiments with bile and gastric juice both in the clinic, in the test-tube and on animals, confirmed this assumption. He found that the acidity of the gastric juice is modified by the bile and that it neutralizes the pepsin and thus inhibits the corrosive action of the gastric juice on a gastric ulcer. He gives the details of thirty-three cases of various stomach affections in which he administered small amounts of cholic acid as the equivalent of bile, from 0.4 to 0.6 c.c. of cholic acid. He generally gave it in the form of an emulsion of 0.2 gm. sodium cholate in 0.2 gm. oil, enclosed in a gelatin capsule, the patient taking from two to five of the capsules. Or he used in each capsule 0.1 gm. cholic acid or 0.2 gm. sodium

cholate. Marked benefit was realized in a number of cases; in some the pathologic condition was transformed and the patients seem to be now permanently cured of their old stomach trouble connected with the hyperacidity.

234. **Operative Treatment of Thyroid Insufficiency.**—Von Jauregg says of thyroid grafting that this method of treating hypothyroidism has no present and has little if any future. But he relates a number of significant clinical and experimental facts which suggest the possibility that an operation on the thyroid—even when it is not enlarged—might have an influence on the functioning of the gland, diverting it into a more normal course. He thinks the method is worth a trial in myxedema with goiter, in endemic cretinism and infantile myxedema. If the thyroid is enlarged, part of it might be resected; if not, the isthmus might be severed, or both might be done in endemic cretinism as with this the isthmus portion of the thyroid is the part generally enlarged. Among the experiences related to sustain this suggestion is Poncet's success with exothyropexy in the case of a girl of 14 with typical myxedema. Her physical growth was scarcely that of a child of 8, and the mental development below this. The thyroid was abnormally small and he lifted it out of its bed and kept it exposed for a time, covered only with gauze. The wound was allowed to heal up after a month or so and the child developed much better afterward, the mental condition materially improving. This was also observed in Neudorfer's case, a complete transformation in character and in mental and physical development following an operation on a goiter in a youth of 19 extremely backward in both body and mind; similar benefit had followed an operation on a brother for goiter. Cathcart has also reported the subsidence of myxedema after partial thyroidectomy in a woman with a goiter. Von Jauregg has also observed a complete transformation after a partial operation on the thyroid gland in two dogs with pronounced cretinism and goiter.

Zeitschrift für Kinderheilkunde, Berlin

VIII, No. 6, pp. 443-527. Last indexed Oct. 18, p. 1498

235 Unusual Case of Hysteria in a Child. I. Engel.
236 *Recovery from Leishman's Anemia. G. Caronia.
237 No Specific Skin Reaction in Eczematous Children. (Ueber Hautreaktionen bei gesunden und ekzematösen Kindern.) F. Mautner.
238 *Causes of Psychic Abnormalities of Children. (Ueber die endogenen und exogenen Wurzeln der Dissozialität Jugendlicher.) E. Lazar.

236. **Recovery from Leishman's Anemia.**—Leishman's anemia has been regarded by most authors as an incurable disease. Caronia gives case-histories of eight recoveries, and cites six others, making fourteen in all. He believes, however, that the recoveries were due to natural immunity and the vitality of the organism rather than to any specific treatment. Various methods of treatment were used, the most effective being arsenical preparations, including salvarsan and cacodylate of iron.

238. **Causes of Abnormal Psychic States in Children.**—Lazar describes cases of various forms of abnormal tendencies in children, such as violence, sexual perversion, pyromania, exalted and depressed emotional states and criminal activities of different kinds. These may be the result of congenital predisposition or the expression of mental or nervous disease. But the fact should not be overlooked that even such abnormal tendencies may be overcome in many cases by bringing the child up in the proper environment. Treatment should be directed to early detection of the abnormal predisposition and to prevention of its development by rational training.

Zeitschrift für Urologie, Berlin

September, VII, No. 9, pp. 705-784

239 *Vaccine Therapy in Infectious Disease of the Urinary Passages. O. Wulff.
240 Advantages of Electrolysis in Treatment of Bladder Papillomas. R. Oppenheimer.
241 Egyptian Hematuria in Babylon. P. Richter.

239. **Vaccine Therapy in Urology.**—Wulff writes from the surgical clinic at Copenhagen in charge of Rovsing to laud the efficacy of autogenous vaccines in treatment of affections of the urinary passages. One hundred patients were given this treatment but only those of whom accurate and prolonged records were kept are discussed here. In one group of twenty-three patients the trouble began suddenly with pains in the loins, high fever, sometimes chills or pyuria. In the majority there had been recurring attacks like this for some time before the vaccine therapy had been applied. The acute febrile attack was arrested at one stroke by the vaccine, and the tendency to recurrence was cured at the same time. Wulff explains these cases as the result of some infectious focus outside of the urinary passages; when the bacteria from this focus get into the blood-stream from any cause this brings on the acute attack as the bacteria reach the kidneys and set up trouble there. After the invasion of the blood-stream ceases, the kidney trouble lets up, either healing completely or lapsing into a latent phase to flare up anew with new reenforcements of bacteria. The vaccine therapy puts an end to this, either by destroying the primary focus or by modifying the system in such a way that it is able to resist the bacterial invasion. He has had similar experiences with vaccine therapy of typhoid, but he has not been able to find in the literature any account of similar experiences with the prophylactic-curative action of vaccine therapy with infection of the urinary passages. The cure seems to be complete in twenty-one of the twenty-three patients in this group although their urinary trouble was of many years' standing in a number. In two of the cases the patients had recurrence of the trouble later, but in a much milder form and the tendency gradually abated entirely, the final effect thus being the same in all. In one streptococci had been found; in all the other cases the colon bacillus was responsible for the infection. This group included also four cases of pregnancy pyelonephritis. In two of the twenty-three cases, however, no effect from the vaccine therapy was apparent; the recurrence in these cases was always coincident with the onset of menstruation but no gynecologic affection could be discovered.

In a group of nineteen patients with a more chronic infectious trouble of the urinary passages, all were improved or cured but one. Albumin and pus disappeared from the urine but bacteriuria sometimes persisted. In the cases with kidney calculi or an infected wandering kidney, the outcome was, naturally, less favorable; only 53 per cent. of the seventeen patients in these classes were improved or cured. Excluding these groups, Wulff had 91 per cent. cured or materially improved of the other forty-six patients, while in a parallel group of forty patients treated with the ordinary measures, without the vaccine, only sixteen out of forty were materially benefited.

Albumin was found in the urine in 76 per cent. of the total patients before the vaccine therapy and the proportion dropped to 28 per cent. afterward; pyuria dropped from 100 per cent. to 41 per cent., but bacteriuria dropped from 100 per cent. only to 71 per cent.—showing that the effect of the vaccine therapy is less marked on bacteriuria than on the presence of albumin and pus in the urine. The opsonin index was repeatedly tested but was not found a reliable guide in any way in these urologic affections.

Zentralblatt für Chirurgie, Leipsic

September 27, XL, No. 39, pp. 1513-1544

242 Local Action of Novocain Enhanced by Potassium Sulphate. (Potenzierung der örtlichen Novokainwirkung durch Kaliumsulfat.) H. Braun.
243 Subserous Drainage of Cystic Duct after Simple Cholecystectomy. H. Flörcken.

Zentralblatt für Gynäkologie, Leipsic

September 27, XXXVII, No. 39, pp. 1429-1468

244 *Prophylaxis of Puerperal Fever. (Verhütung der durch Spontaninfektion verursachten Wochenbettfieber.) P. Zweifel.

244. **Prevention of Puerperal Fever.**—Zweifel states that at the gynecology clinic in his charge at Leipsic he has succeeded in materially reducing the number of cases of puerperal fever, and he ascribes this success to his method of wiping out with a dry sponge the clots left in the rear of the vagina and rinsing out the vagina with a fluid which restores the element lacking in pathologic vaginal secretions. This lacking element, he says, is lactic acid; it occurs in

the form of free acid in the normal vaginal secretions, to a maximum of 5 per thousand. With normal secretions and boiled water rinsing the vagina through a Fergusson speculum, the fluid is whitish, while there is a yellow tint when the secretion is pathologic. It is thus possible at a glance to distinguish the pathologic cases and commence the lactic-acid rinsing out of the vagina. He keeps up the prophylactic irrigation once a day for at least ten days. This lactic-acid method has been applied since 1909 to all pregnant women near term with a pathologic yellowish secretion, and the morbidity has dropped from 28.6 per cent. to 7.6 per cent. As nothing has been changed in the methods of procedure during this period except adding the prophylactic lactic-acid douche, the testimony speaks strongly in favor of the measure. He orders 100 c.c. each of (fermentation) lactic acid and of distilled water; 10 c.c. of the mixture to 1 liter of water gives the correct dilution of 5 per thousand. He suggests that as the lactic-acid douches have proved their usefulness, it might be well to introduce them generally without regard to pathologic conditions or not, just as the measures for prophylaxis of ophthalmia neonatorum are applied to all indiscriminately. This is the more rational as the 5 per thousand lactic-acid solution can never do harm. He warns against the danger of full baths just before delivery, and describes some cases in which severe puerperal fever followed for which no cause could be discovered except the penetration of the bath-water into the vagina. In one such case a woman took a bath in her boarding-house after the membranes had ruptured, just before entering the maternity, and severe puerperal fever followed, lasting for several months before the final recovery; no internal examination was made in this case and the perineum had been supported only with gloved hands wound with a cloth dipped in mercuric chlorid solution.

Zentralblatt für innere Medizin, Leipsic

September 27, XXXIV, No. 39, pp. 977-1000

245 Origin of Gout. (Experimenteller Beitrag zum Verständnis der Gichtpathologie.) R. Bass.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 21, XXXIV, No. 113, pp. 1175-1190

246 Unusual Types of Malaria; Four Cases. (Febbri comitate.) T. Pepe.

September 23, No. 114, pp. 1191-1198

247 Temporary Intubation to Cure Disease of Lacrimal Sac. (Nuovo metodo di dacriocistorinostomia.) R. Casali.

September 25, No. 115, pp. 1199-1206

248 Tubercle Bacilli Only Rarely to Be Found in the Blood. (Ricerche ed osservazioni sulla bacillemia tubercolare.) E. Arieti.

Policlinico, Rome

September 21, XX, No. 38, pp. 1361-1396

249 *Hemostasis in Operating on the Liver. (Nuovo metodo di emostasi definitiva del fegato.) O. Tenani.

250 Therapeutic Pneumothorax for Out-Patients. (Sull'applicazione ambulatoria del metodo Forlanini nella cura della tubercolosi polmonare.) L. Cherubini.

249. **Hemostasis in Operations on the Liver.**—Tenani calls attention to the effectual prevention of any bleeding in resection of the liver by the technic he has worked out. His experiments were done on dogs and rabbits, and the results amply confirm the advantages of the technic for clinical use. He braids together four or five catgut threads, size 3 or 4, weaving them just loose enough to permit a needle threaded with catgut to be worked through at various points. The liver exposed, he cuts two strips of the braided catgut to correspond to the width of the liver where it is to be resected. One of the strips of braided catgut is laid across the top and the other across the bottom of the liver, just beyond where it is to be resected, and an assistant holds the four ends, thus drawing the strands of catgut taut across the liver above and below. The needle threaded with catgut is then passed through the lower strand, up through the liver tissue, and is drawn out through the upper strand. This is repeated at intervals of half a centimeter across the whole width of the liver; the loose ends are held two by two with forceps until all the loops are in place, when the two ends are knotted together over the support of the catgut braid both on the upper and under aspect of the liver. The organ is then cut across and there is no hemorrhage from the cut surface, nothing to require even the least tamponing. The catgut braid strips are left undisturbed and they gradually become absorbed without causing any disturbance. He drew the omentum down to cover the raw surface in his experiments, and he thinks this is an excellent adjuvant measure, as also his practice of injecting a small amount, not over 5 or 8 c.c., of liquid petrolatum. When the animals were killed the raw surface of the liver was found entirely healed with no trace of bleeding or infection. The petrolatum tends to prevent the development of adhesions while it is not a culture medium for germs like olive oil or similar substances, and it has no irritating action on the peritoneum.

Riforma Medica, Naples

September 20, XXIX, No. 38, pp. 1037-1064

251 Experimental Arteriosclerosis. (Ricerche sperimentali sulla genesi dell'ateroma aortico e sulle alterazioni del miocardio da esso dipendenti.) C. B. Farmachidis. Commenced in No. 37.

Brazil-Medico, Rio de Janeiro

September 8, XXVII, No. 34, pp. 356-365

252 Passage of Evans' Trypanosome through Guinea-Pig Conjunctiva. A. Neiva.

253 Prophylaxis of Venereal Disease. W. Machado.

Semana Medica, Buenos Aires

August 28, XX, No. 35, pp. 457-516

254 The Liver with Appendicitis. (El higado apendicular.) E. L. de Gomara.

September 4, No. 36, pp. 517-568

255 Hypophysis Extract and Epinephrin in Ophthalmology. R. Argañaraz.

256 Strophanthin in Cardiovascular Disease. (Estrofantinoterapia.) M. R. Castex.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 6, II, No. 10, pp. 729-816

257 *Scarlet Fever. (Roodvonk.) P. H. Kramer.

258 Early Operation in Appendicitis. C. Metzlar.

259 Case of Idiosyncrasy to Aspirin. (Overgevoeligheid voor acid. acetylosalicylicum en aspirin.) M. Jacobs.

257. **Scarlet Fever.**—Kramer reviews his experience at the Rotterdam contagious disease hospital with 910 cases of scarlet fever in the last four years. He states that in the last four months of 1912 there were 2,411 cases of scarlet fever at Amsterdam, with eleven deaths, while during the same period there were 358 cases at Rotterdam, with twenty-one deaths, the mortality thus being respectively 0.46 and 5.87 per cent. There was complicating otitis in 8.6 per cent. of his total 910 cases, and nephritis in 7.7 per cent. The diazo reaction was not found reliable in differentiation. In 2.1 per cent. of the cases the disease returned or relapsed, once during the second week after supposed recovery and in three, seven and five cases in the third, fourth or sixth week. Thirty-one "return cases" are reported. In five instances the scarlet fever developed after an operation, but in no case did the eruption appear first around the wound. One woman developed scarlet fever the tenth day after delivery; no source of contagion could be discovered. Kramer states in conclusion that he found epinephrin very useful in tiding the patients past the danger point when the adrenals seem to be suffering acutely from the infectious-toxic process. The most serious symptoms observed in the syndrome he attributes to the lack of the normal adrenal secretion, and he gives epinephrin to combat this. Camphorated oil, also, alone or in combination with the epinephrin, proved surprisingly effectual in some of the more serious cases. He does not give any details as to his dosage or technic with either the epinephrin or the camphorated oil.

Medizinskoe Obozrienie, Moscow

LXXIX, No. 11, pp. 905-1000

260 Intradermal Tuberculin Test in Diagnosis of Tuberculosis Applied to 160 Children. S. L. Zvenigorodski.

261 Hodgkin's Disease in Boy of 8. A. A. Koltinin.

262 Tubal Pregnancy. (O chirurgitcheskom lietchenie vniematotchnoi beremennosti.) A. L. Borissoff.

263 Cesarean Section; Thirty Cases. A. N. Rachmanoff.

264 Simple and Inexpensive Bouillon Culture Medium. (Prigotovlenia miaso-peptonnago bouillona po Prof. Hottinger'y.) A. Sineff.